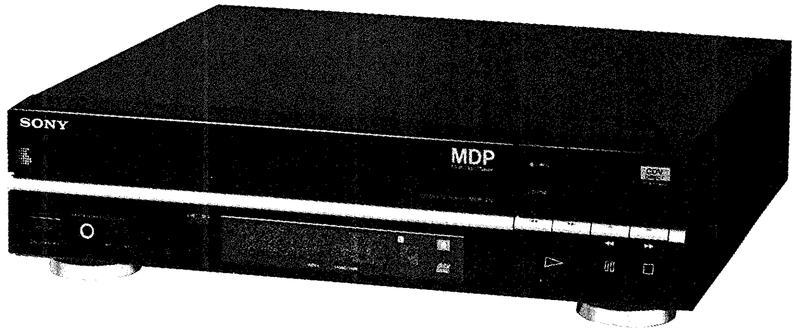
MDP-212
RMT-102

SERVICE MANUAL

AEP Model
Australian Model



SPECIFICATIONS

Type CD video system player
Signal read-out Optical (laser beam reflection)
Signal format CCIR standard, PAL color system
Playing time

LD	CAV	30 cm (12 inches) double-sided	72
		20 cm (8 inches) double-sided	32
	CLV	30 cm (12 inches) double-sided	120
		20 cm (8 inches) double-sided	40
CD		12 cm (5 inches) single-sided	74
		8 cm (3 inches) single-sided	20
CDV		Audio portion	20
		Video portion	6

(minutes)

Frequency response
5 Hz to 20 kHz (±0.3 dB)
Signal-to-noise ratio
More than 100 dB
Dynamic range More than 96 dB
Total harmonic distortion
0.003% or less
Wow and flutter Below measurement limit (±0.001 W.PEAK)
Video output 1.0 Vp-p, 75 ohms, unbalanced
Audio output (×2) Analog: 200 mVrms (1 kHz, 40% modulation)
Digital: 200mVrms (1 kHz, −20 dB)
AERIAL (VHF) input/output
A symmetrical aerial socket, 75 ohms unbalanced
Headphone output
28 mW (32 ohms), impedance = 8 ohms

Power requirements
For the United Kingdom: 240 V AC, 50/60 Hz
For the other area: 220 V AC, 50/60 Hz
Power consumption
40 watts
Weight 11 kg (24 lb 4 oz)
Dimensions Approx. 430 × 110 × 414 mm (w/h/d)
($17 \times 4\frac{3}{8} \times 16\frac{3}{8}$ inches)
Operating temperature
+5°C to 35°C
Ambient humidity 5 to 90%

Remote Commander RMT-102
Principle of operation
Infrared pulse
Power requirements
3 V DC (2 size AA batteries)
Dimensions Approx. 67 × 21 × 175 mm (w/h/d)
($2\frac{3}{4} \times 2\frac{7}{32} \times 7$ inches)
Weight Approx. 155 g (including batteries), (6 oz)

Design and specifications subject to change without notice.

CD VIDEO **CD/CDV/LD PLAYER**

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

Remote commander RMT-102 is supplied as a unit for service. Don't supply individual parts except the battery case lid.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 nm
   - Emission Duration: continuous
2. During service, do not take the Optical Pick-up Block apart, and do no adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

DANGER
Invisible laser radiations when open and interlock failed or defeated.
Avoid direct exposure to beam.

CLASS I LASER PRODUCT

ADVARSEL:
USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UD AF FUNCTION UNDGÅ. UDSAETTELSE FOR STRÅLING.

CLASS 3B LASER

VAROITUS!
SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ)
SILMILLE VAARALLISTA LASERSÄTEILYÄ.

LASER COMPONENT IN PRODUCT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS I.

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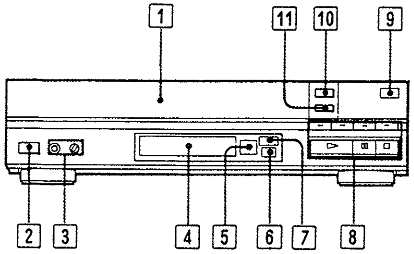
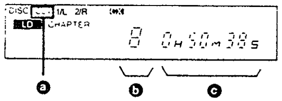
SECTION 1
GENERAL

Location and Function of Parts and Controls

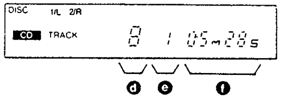
A-1



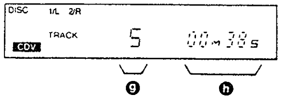
A-2



A-3



A-4



Front panel

A-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

1 **Disc tray**

2 **ON/STANDBY (power) switch and indicator**

3 **PHONES jack (stereo phone type) and LEVEL control**
When listening with headphones, connect the headphones with stereo phone plug here. Adjust the volume with the LEVEL control.

4 **Display window**
When playing back a disc, the following indications appear on the display.

A-2

LD
- ⓐ Type of LD
- ⓑ Chapter number
- ⓒ Time (hr./min./sec.) or frame number

A-3

CD/CDV audio portion
- ⓓ Selection number
- ⓔ Index
- ⓕ Elapsed time (min./sec.) for selection

A-4

CDV video portion
- ⓖ Track number
- ⓗ Elapsed time (min./sec.) for track

5 **Remote sensor**
Point the supplied Remote Commander here.

6 **DIGITAL SOUND indicator**
When an analog sound of an LD is played back, this indicator goes off.

7 **⏻ Standby indicator**
Lights up when the unit is in the standby state, and goes off when the ON/STANDBY indicator lights.

8 **Basic operation buttons**
⏮/⏭ Automatic Chapter Select/Music Sensor (ACS/AMS) buttons (reverse/forward)
◀◀ ⊖/⊕ ▶▶ (Scan) buttons (reverse/forward)
▶ (Play) button and indicator
❚❚ (Pause) button and indicator
■ (Stop) button

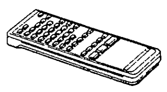
9 **CDV (DIRECT) button**
Press to locate the video portion of a CDV disc.

10 **⏏ OPEN button**
Press to open the disc tray.

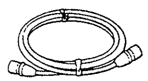
11 **CLOSE button**
Press to close the disc tray.

Accessories

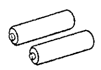
The following accessories are included in the carton.



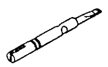
RMT-102 Remote Commander



75-ohms coaxial cable for TV connection



Two IEC R6 (size AA) batteries

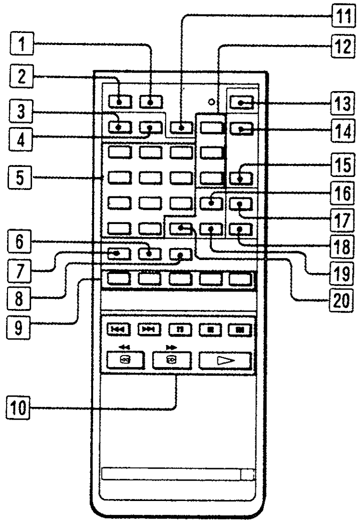


A minus screwdriver for channel adjustment

Location and Function of Parts and Controls

Remote Commander

B-1



B-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

1 **TV/DISC button**
When the unit is connected to the TV via the EUROCONNECTOR, press to monitor TV programmes. Press again to return to disc viewing.

2 **DISPLAY button**
Press during playback to superimpose the screen messages (see page 7) on the monitor screen. Press again to remove the message.

3 **PGM (program play) button**

4 **FRAME/TIME search button**

5 **Number buttons**
These are used for entering program, chapter, track, frame and time numbers.

6 **▶◀ STILL button**

7 **</◀II STEP button (reverse)**

8 **>/II▶ STEP button (forward)**

9 **Speed play buttons** (× 1/30, × 1/8, × 1/2, × 1 × 3)

10 **Basic operation buttons**
I◀◀/▶▶I ACS/AMS (Automatic Chapter Select/Music Sensor) buttons
II (Pause) button
■ (Stop) button
■II (Memory stop) button
◀◀/▶▶ (Scan) buttons (reverse/forward)
▶ (Play) button

11 **CLEAR button**
Press to cancel a wrong numerical entry or to terminate the search or other function currently in operation. (The functions affected are marked on the Remote Commander with yellow underlines.)

12 **REPEAT (1, A-B, ALL) buttons**
These are used for three types of repeat playback.

13 **⏻ (Standby) button**

14 **⏏ OPEN button**

15 **AUDIO MONITOR button**
Press to switch the audio channels of a disc in the order of stereo, 1L, and 2R.

16 **SHUFFLE button**
Press to play back selections on a CD/CDV in a random order.

17 **CD TIME display selector button**

18 **CDV (DIRECT) button**

19 **BACK button**

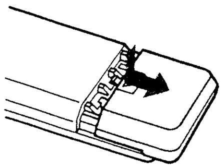
20 **SEARCH/NEXT button**

Precautions on the Remote Commander

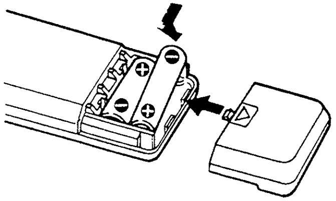
- Do not let strong sunlight or a strong artificial light source shine directly on the remote sensor, as it may interfere with the operation or damage the sensor.
- When a TV or other equipment is connected to the CONTROL S IN jack of the MDP-212, the remote sensor of this unit is deactivated. In this case, point the Remote Commander to the sensor of the connected equipment.

Installing batteries

1 Open the lid.



2 Insert the two IEC R6 (size AA) batteries with correct polarity.



Battery life

Batteries should last for about six months under normal operating conditions. When the operating range of the Remote Commander becomes noticeably short, replace the batteries with new ones.

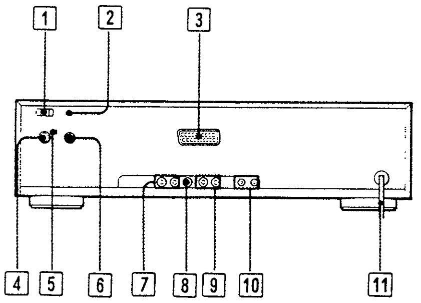
Note

When the Remote Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

Location and Function of Parts and Controls

Rear Panel

C-1



C-1

1 **TV SYSTEM selector**
This selector is set to the I position for the United Kingdom or to the G position for the other European countries at the factory for proper RF modulation.

2 **RF channel screw**
If there is interference on the factory-set channel for RF output and the output signal from this unit cannot be displayed clearly on the TV screen, adjust the screw using the supplied minus screwdriver.

3 **EUROCONNECTOR (21-pin)**
Connect to the 21-pin connector of a VTR or a TV, or to the audio/video input of these units with a commercially available connecting cable.

4 **AERIAL IN socket**
Connect the aerial cable.

5 **DX/LOCAL selector**
Set to LOCAL when noise appears in areas where the TV signals are strong, or to DX in areas where the signals are weak.

6 **AERIAL OUT socket**
Connect the aerial input of the TV receiver.

7 **AUDIO (1L/2R) OUT (output) 1 jacks (phono type)**

8 **VIDEO OUT (output) jack (phono type)**

9 **AUDIO (1L/2R) OUT (output) 2 jacks (phono type)**

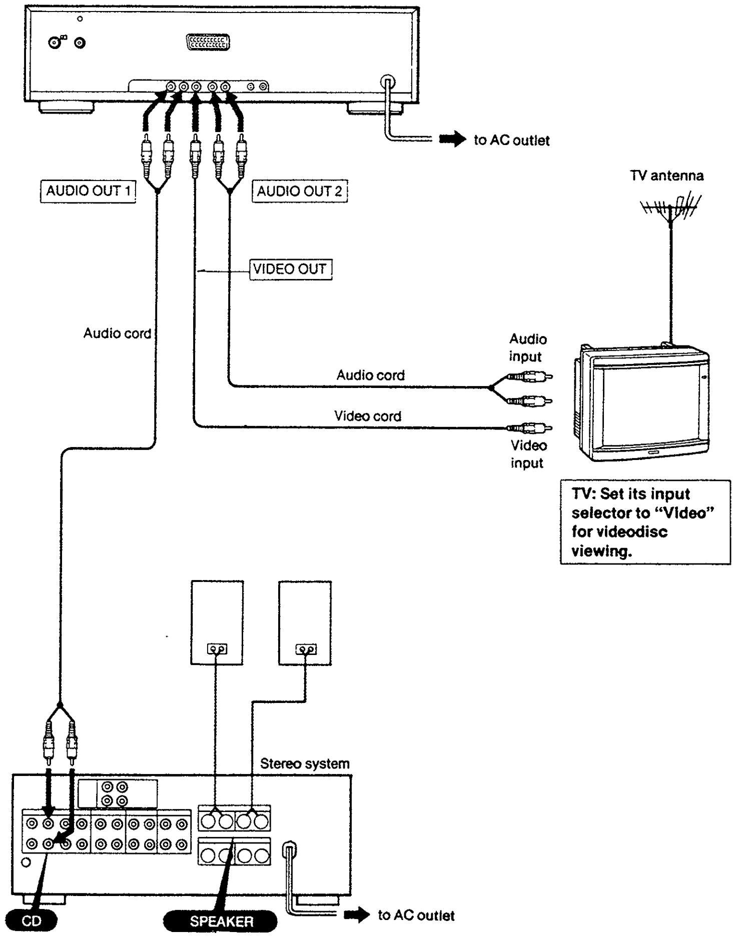
10 **CONTROL S IN (input)/OUT (output) jacks (mini type)**
IN: Connect the CONTROL S OUT jack on a TV, and the MDP-212 can remotely be controlled by pointing the Remote Commander to the remote sensor on the TV.
OUT: Connect the CONTROL S IN jack of a VTR. If the CONTROL S IN jack of the MDP-212 is connected to the CONTROL S OUT of a TV, both the VTR and the MDP-212 can remotely be controlled by pointing the Remote Commander to the remote sensor on the TV.

11 **AC power cord**

Preparations

Make system connecting before operating the player.

To Connect to Audio System or TV with Audio/Video Inputs



TV: Set its input selector to "Video" for videodisc viewing.

SECTION 2
DISASSEMBLY

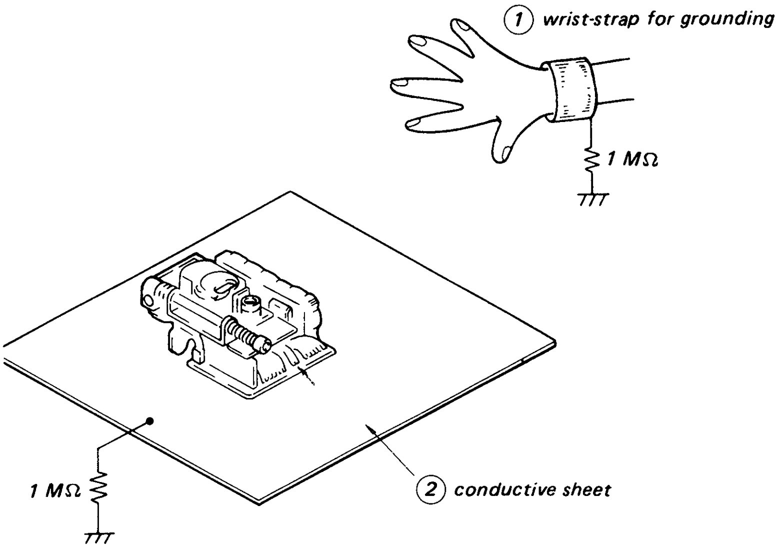
NOTE FOR HANDLING OF OPTICAL BLOCK ASS'Y (KHS-110A)

- Sometimes electrostatic breakdown of the laser diode in the optical block ass'y is caused by potential difference between the electrostatic charge of the block and the one of clothes or a human body.
  Be careful to the following notes for preventing the diode from the breakdown.

  The following manners are recommended as reference.
  1. Cover a work table with a conductive sheet (black sheet used for the part package).
  2. Place a set on the sheet so that the chassis of the set contacts the sheet (for making the potential of the set equal to the one of the sheet).
  3. Put hands on the conductive sheet (for making the potential of a human body equal to the one of the sheet).
  4. Take out the optical block ass'y from its bag.
  5. Work should be done on the conductive sheet with care that clothes do not touch the optical block ass'y.

Also, these notes are enclosed in repair part package.

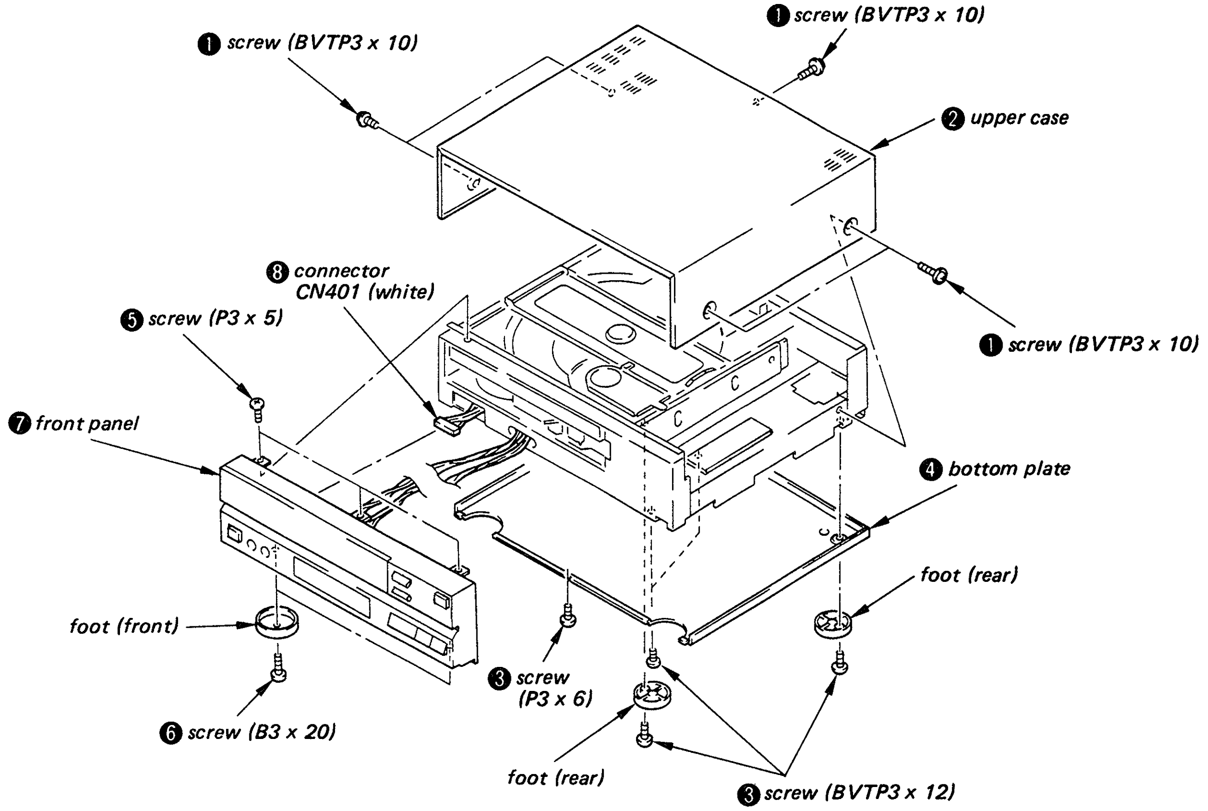
1. Grounding for the human body
   Be sure to put on a wrist-strap for grounding (with impedance lower than $10^8 \Omega$) whose other end is grounded. The strap works to drain away the static electricity build-up on the human body.
2. Grounding for the work table
   Be sure to lay on the table a conductive sheet (with impedance lower than $10^9 \Omega$) such as a sheet of copper, which is grounded.
3. As static electricity build-up on clothes is not drained away, be careful not to let your clothes touch the unit.



- Be careful not to put dust or fingerprints on the object lens and skew lens while handling.

2-1. REMOVAL OF CASE AND FRONT PANEL

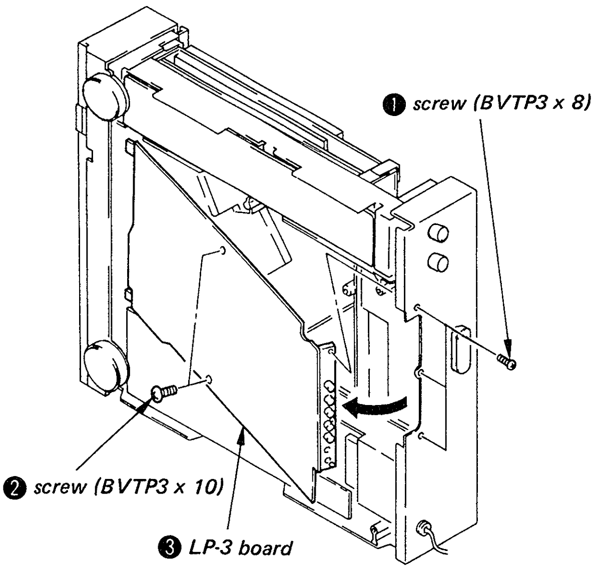
1) Remove the five screws (BVTP3 x 10) ❶.
2) Remove the upper case ❷.
3) Remove the five screws (BVTP3 x 12) ❸.
4) Remove the bottom plate ❹.
5) Remove the three screws (P3 x 5) ❺.
6) Remove the two screws (B3 x 20) ❻.
7) Remove the front panel ❼ and remove the connector (CN401) ❽.



❶ screw (BVTP3 x 10)
❶ screw (BVTP3 x 10)
❷ upper case
❽ connector CN401 (white)
❺ screw (P3 x 5)
❶ screw (BVTP3 x 10)
❼ front panel
❹ bottom plate
foot (rear)
foot (front)
❸ screw (P3 x 6)
❻ screw (B3 x 20)
foot (rear)
❸ screw (BVTP3 x 12)

2-2. REMOVAL OF THE LP-3 BOARD

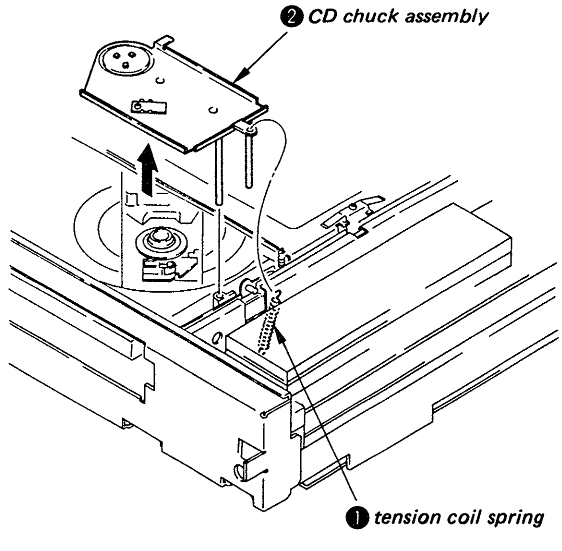
1) Remove the three screws (BVTP3 x 8) ❶.
2) Remove the two screw (BVTP3 x 10) ❷.
3) Open the LP-3 board ❸ in the direction of arrow.



❶ screw (BVTP3 x 8)
❷ screw (BVTP3 x 10)
❸ LP-3 board

2-3. REMOVAL OF CD CHUCK

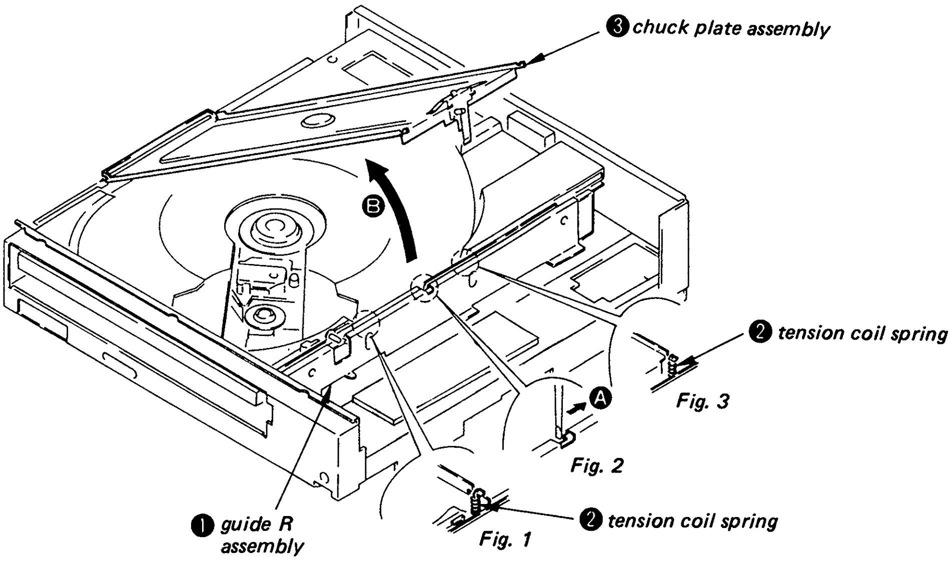
1) Remove the tension coil spring ❶.
2) Remove the CD chuck assembly ❷ in the direction of arrow.



❷ CD chuck assembly
❶ tension coil spring

2-4. REMOVAL OF CHUCK PLATE

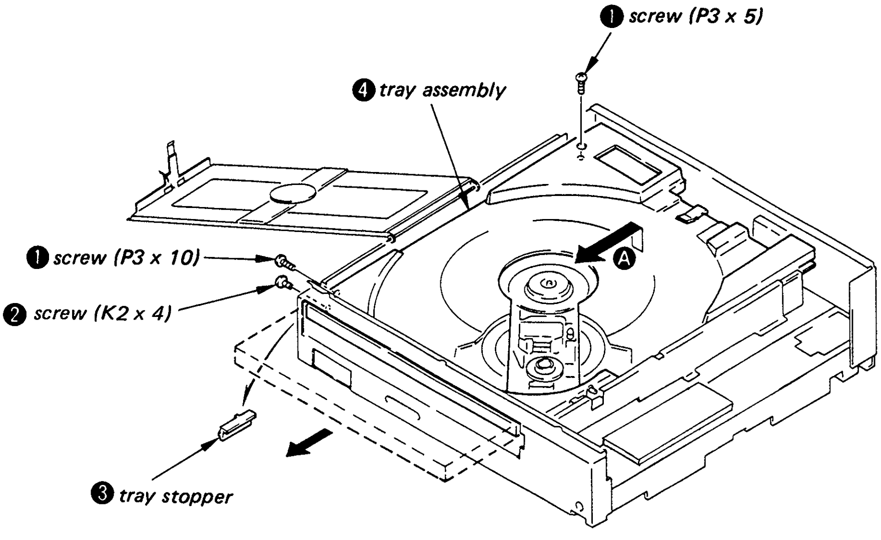
1) Push the section of the guide R assembly ❶ shown in Fig. 1 in the direction 🅐 using a sloted screwdriver, etc.
2) Remove the tension coil springs ❷ located in two places (Figs. 2 and 3).
3) Remove the chuck plate assembly ❸ in the direction of arrow 🅑.


❸ chuck plate assembly
🅑
❷ tension coil spring
Fig. 3
🅐
Fig. 2
❷ tension coil spring
Fig. 1
❶ guide R assembly

2-5. REMOVAL OF TRAY ASSEMBLY

1) Remove the two screws (P3 x 5, P3 x 10) ❶.
2) Remove the screw (K2 x 4) ❷.

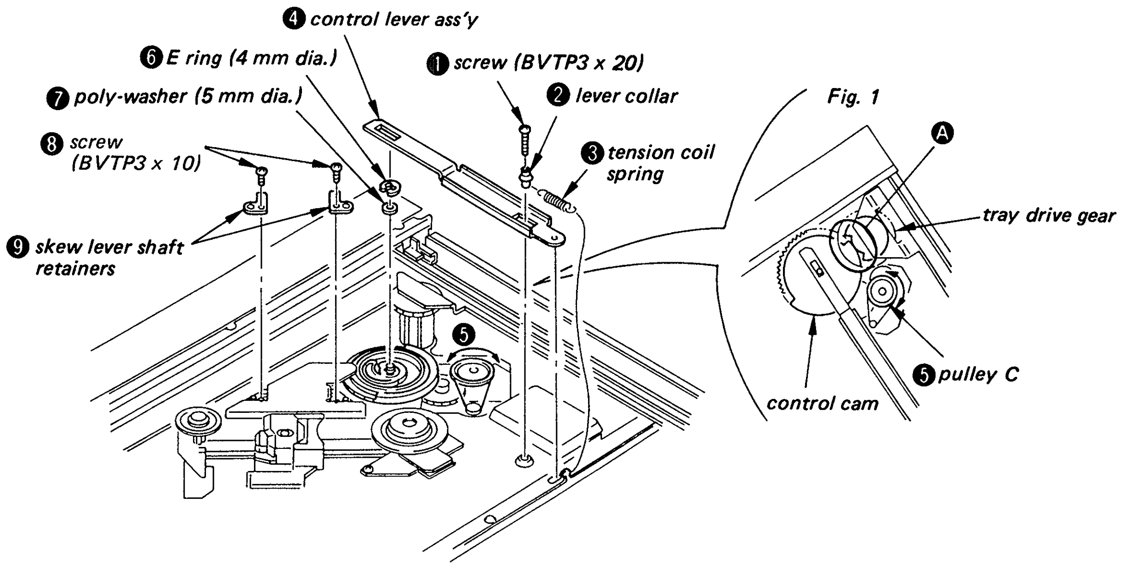
   Note: This screw stops the tray stopper ❸, and when the tray is pulled out, the tray stopper ❸ may be removed.
3) Pull the tray assembly ❹ out while lifting up slightly in the direction of arrow 🅐.

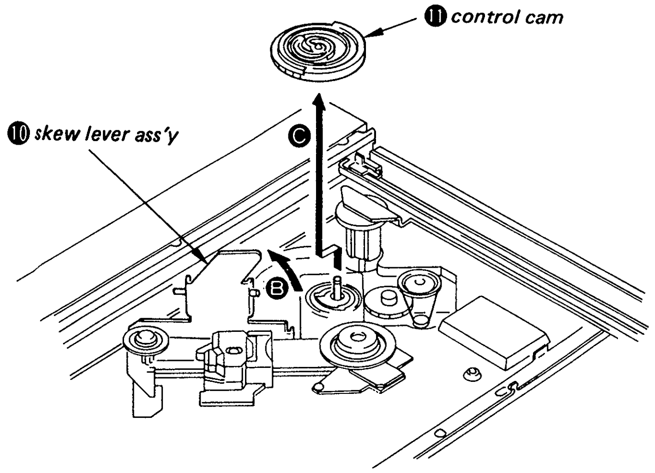

❶ screw (P3 x 5)
❹ tray assembly
❶ screw (P3 x 10)
❷ screw (K2 x 4)
🅐
❸ tray stopper

2-6. REMOVAL OF CONTROL CAM AND TRAY INSTALLATION

- **Removal of Control Cam**

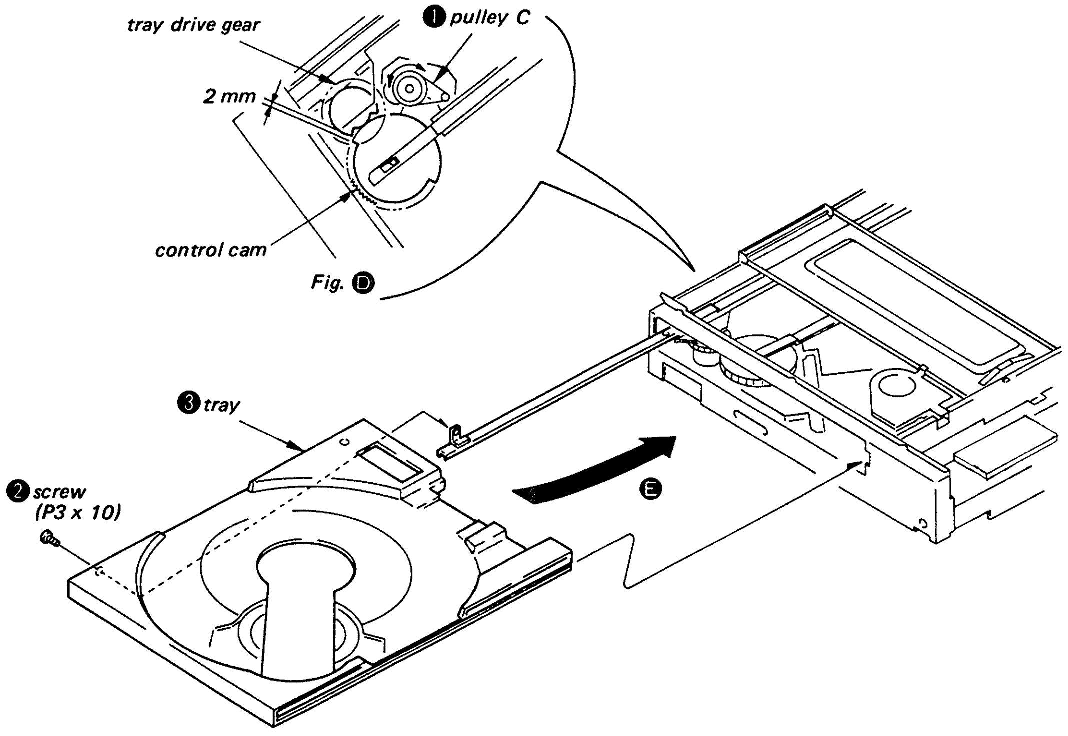
1) Remove the screw (BVTP3 x 20) ❶ and then, the lever collar 2 and the tension coil spring ❸.
2) Remove the control lever ass'y ❹.
3) Rotate the pulley C ❺ so that the control cam and the tray drive gear come to Ⓐ state in Fig. 1.
4) Remove E ring (4 mm dia.) ❻ and the poly-washer (5 mm dia.) ❼.
5) Remove the two screws (BVTP3 x 10) ❽, and then remove the skew lever shaft retainers ❾.
6) Pull up the skew lever ass'y ❿ in the direction of arrow Ⓑ.
7) Then at last, remove the control cam ⓫ in the direction of arrow Ⓒ.

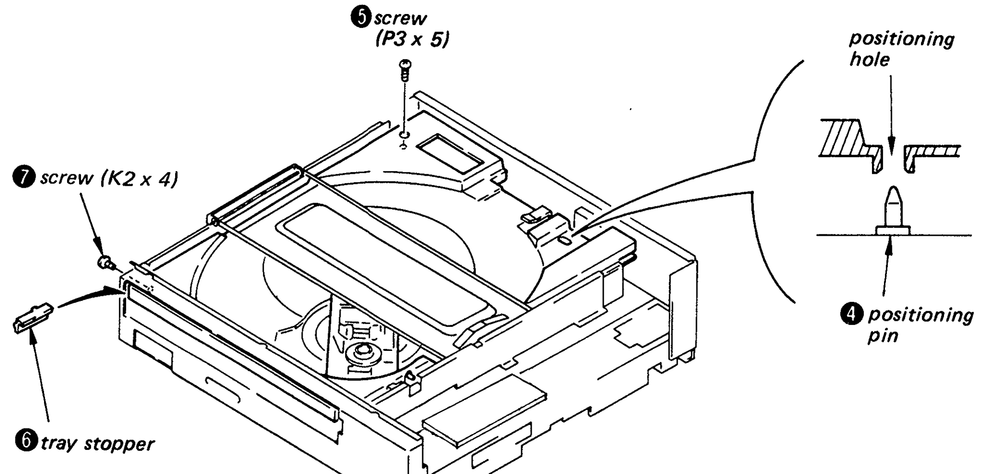

❹ control lever ass'y
❻ E ring (4 mm dia.)
❶ screw (BVTP3 x 20)
❼ poly-washer (5 mm dia.)
❷ lever collar
❽ screw (BVTP3 x 10)
❸ tension coil spring
❾ skew lever shaft retainers
❺
Fig. 1
Ⓐ
tray drive gear
❺ pulley C
control cam


⓫ control cam
❿ skew lever ass'y
Ⓒ
Ⓑ

- **Tray Installation**

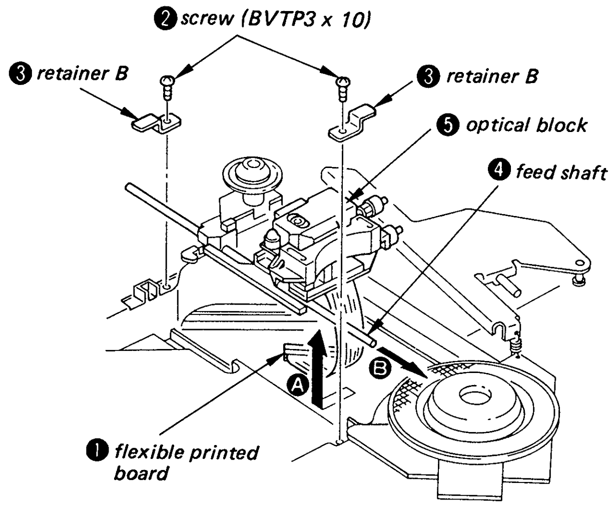
1) Rotate the pulley C ❶ so that the control cam and the tray dirve gear come to the state shown in Fig. Ⓓ.
2) Loosely screw in the screw (P3 x 10) ❷.
3) Push the tray ❸ into the set in the direction of arrow Ⓔ with pressing it to left side because of avoiding the tray drive gear with the tray.
4) Confirm the positioning pin ❹ is seen through the positioning hole of the tray.
5) Tighten the screw (P3 x 5) ❺ and (P3 x 10) ❷.
6) Install the tray stopper ❻ and tighten the screw (K2 x 4) ❼.


tray drive gear
❶ pulley C
2 mm
control cam
Fig. Ⓓ
❸ tray
❷ screw (P3 x 10)
Ⓔ


❺ screw (P3 x 5)
❼ screw (K2 x 4)
❻ tray stopper
positioning hole
❹ positioning pin

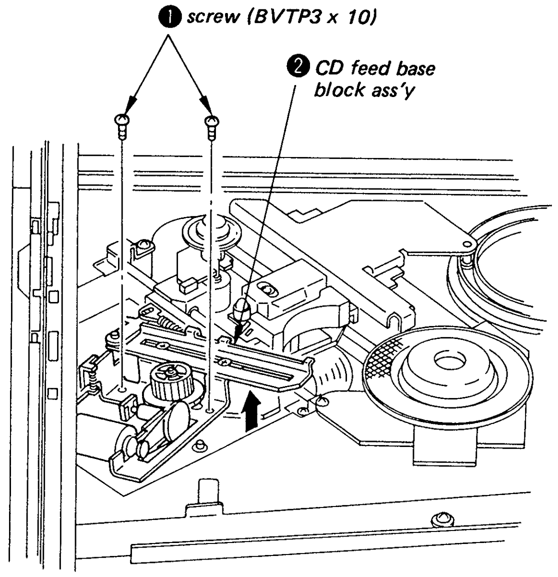
2-7. REMOVAL OF THE OPTICAL BLOCK

1) Pull out the flexible printed board ❶ from CN401 on the LP-3 board.
2) Remove the two screws (BVTP3 x 10) ❷ and then two retainer Bs ❸.
3) Put the optical block ❺ up in the direction of arrow Ⓐ, and pull out the feed shaft ❹ in the direction of arrow Ⓑ.
4) Then, remove the optical block ❺.


❷ screw (BVTP3 x 10)
❸ retainer B
❸ retainer B
❺ optical block
❹ feed shaft
Ⓑ
Ⓐ
❶ flexible printed board

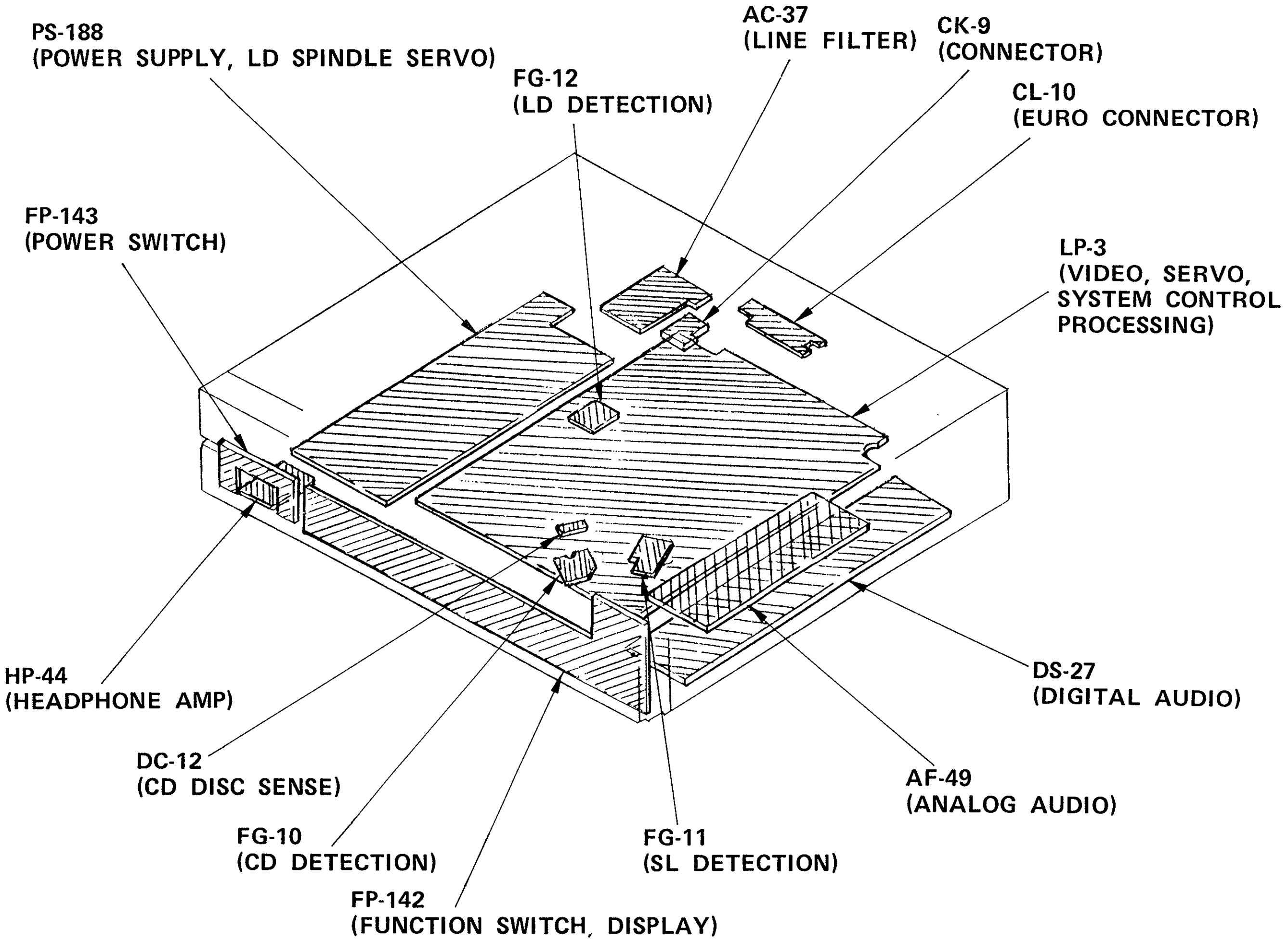
2-8. REMOVAL OF CD FEED BASE BLOCK ASSEMBLY

1) Remove the two screws (BVTP3 x 10) ❶.
2) Then, raise up the CD feed base block ass'y ❷ a little in the direction of arrow.


❶ screw (BVTP3 x 10)
❷ CD feed base block ass'y

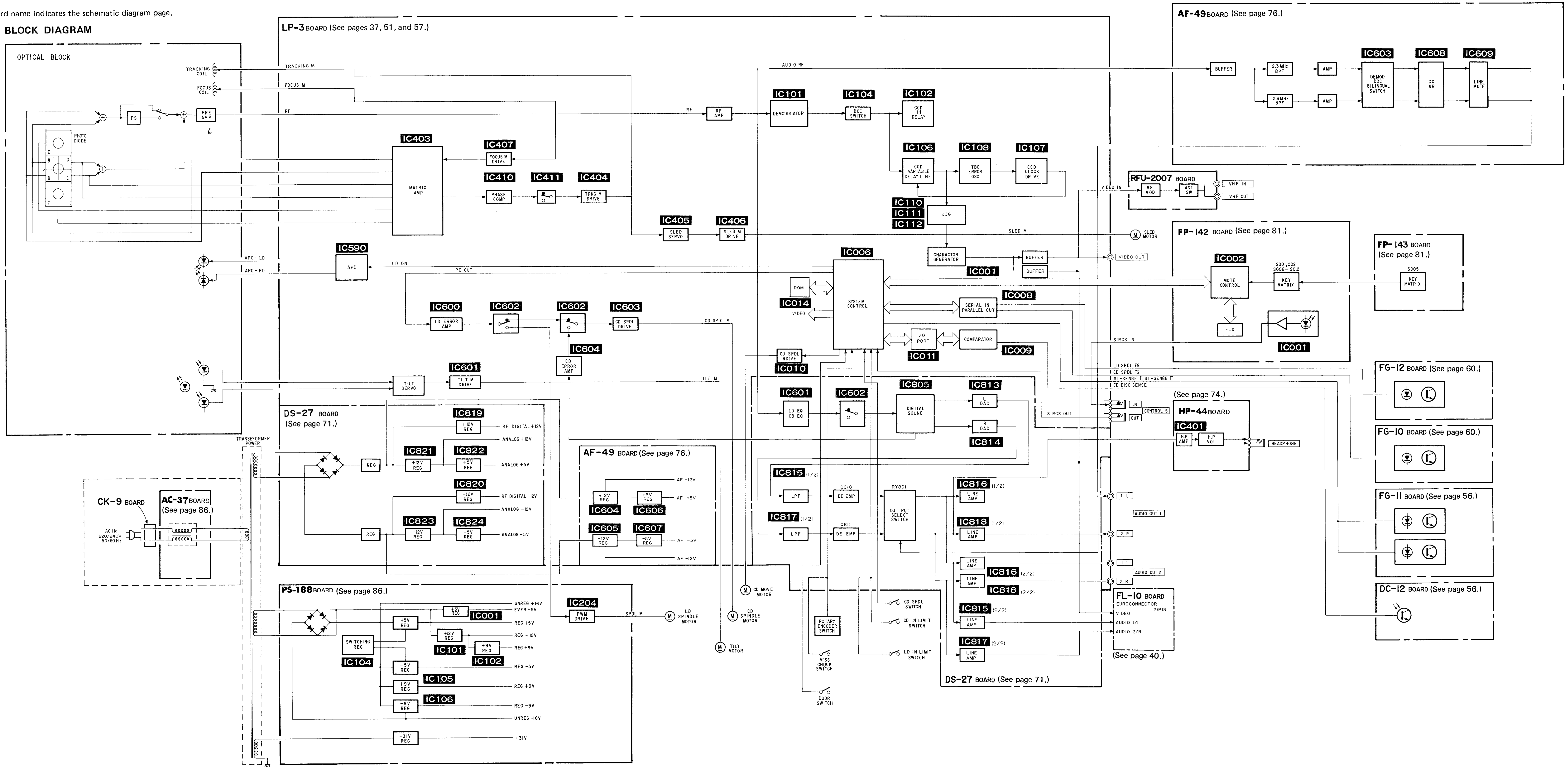
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

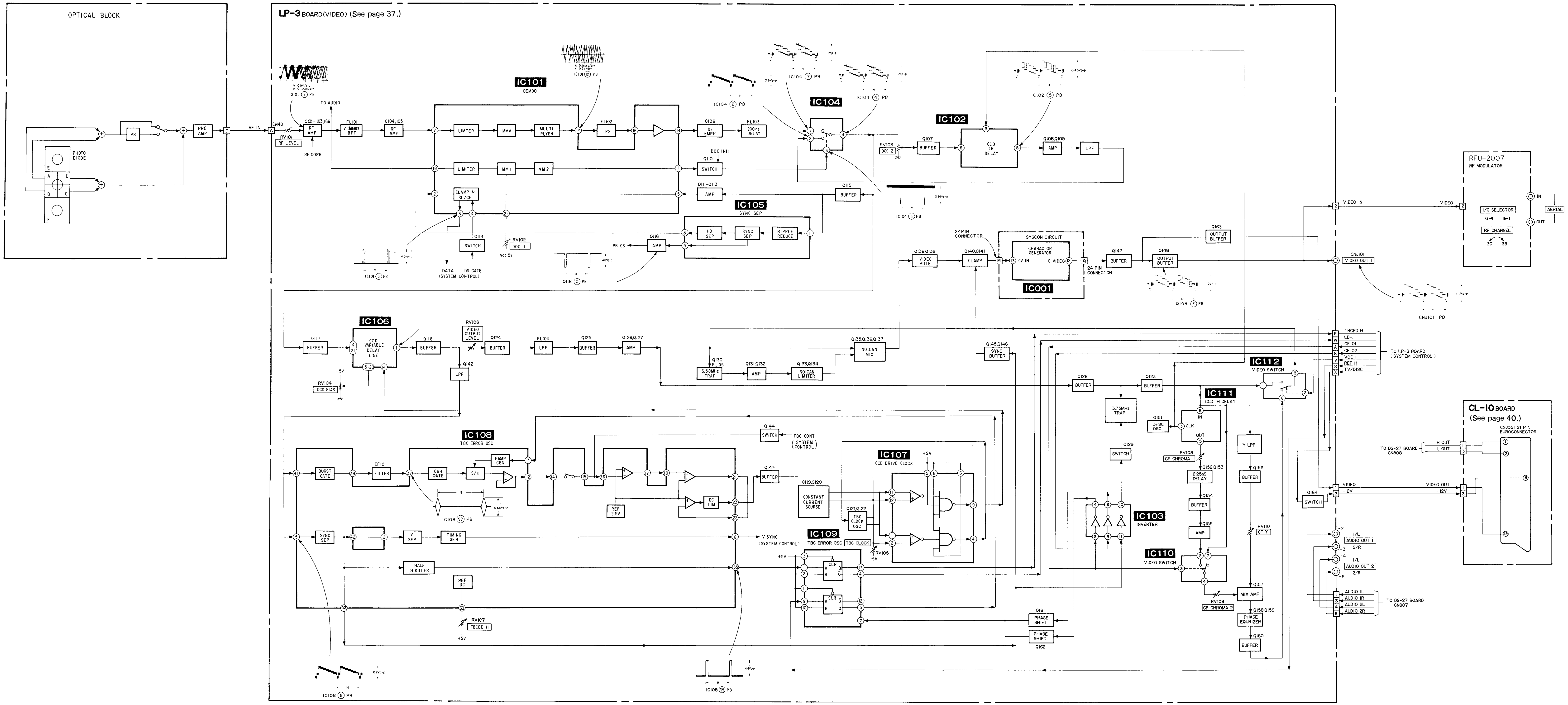

PS-188
(POWER SUPPLY, LD SPINDLE SERVO)
AC-37
(LINE FILTER)
CK-9
(CONNECTOR)
FG-12
(LD DETECTION)
CL-10
(EURO CONNECTOR)
FP-143
(POWER SWITCH)
LP-3
(VIDEO, SERVO, SYSTEM CONTROL PROCESSING)
HP-44
(HEADPHONE AMP)
DS-27
(DIGITAL AUDIO)
DC-12
(CD DISC SENSE)
AF-49
(ANALOG AUDIO)
FG-10
(CD DETECTION)
FG-11
(SL DETECTION)
FP-142
(FUNCTION SWITCH, DISPLAY)

- ( ) near the board name indicates the schematic diagram page.

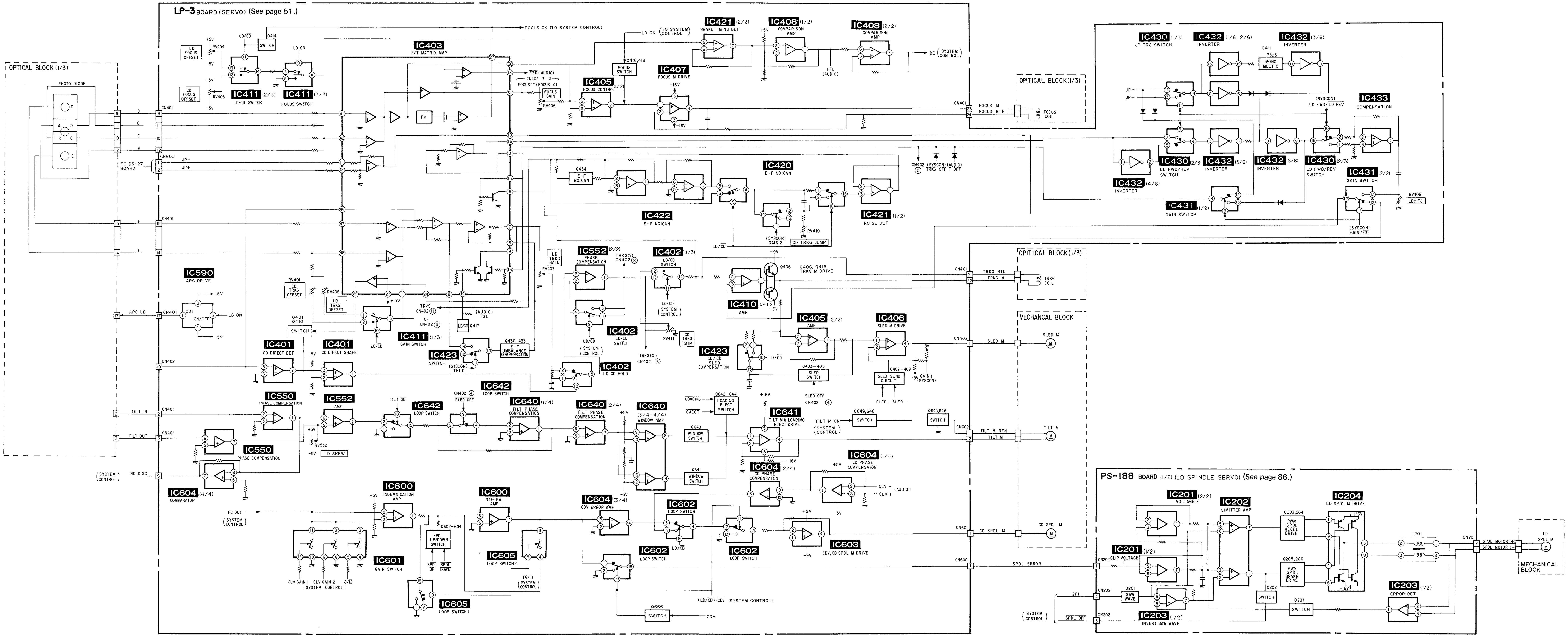
3-2. OVERALL BLOCK DIAGRAM


OPTICAL BLOCK
TRACKING COIL
FOCUS COIL
PS
PRE AMP
PHOTO DIODE
LP-3 BOARD (See pages 37, 51, and 57.)
TRACKING M
FOCUS M
RF
IC403
MATRIX AMP
IC407
FOCUS M DRIVE
IC410
PHASE COMP
IC411
IC404
TRKG M DRIVE
IC405
SLED SERVO
IC406
SLED M DRIVE
SLED M
SLED MOTOR
IC590
APC
APC-LD
APC-PD
LD ON
PC OUT
IC600
LD ERROR AMP
IC602
IC603
CD SPDL DRIVE
CD SPDL M
IC604
CD ERROR AMP
IC601
TILT SERVO
TILT M DRIVE
TILT M
AUDIO RF
RF AMP
IC101
DEMODULATOR
IC104
DOC SWITCH
IC102
CCD 1H DELAY
IC106
CCD VARIABLE DELAY LINE
IC108
TBC ERROR OSC
IC107
CCD CLOCK DRIVE
IC110
IC111
IC112
JOG
CHARACTOR GENERATOR
BUFFER
IC001
IC006
SYSTEM CONTROL
ROM
IC014
VIDEO
IC008
SERIAL IN PARALLEL OUT
I/O PORT
IC011
COMPARATOR
IC009
CD SPDL RDIVE
IC010
IC601
LD EQ CD EQ
IC602
IC805
DIGITAL SOUND
IC813
L DAC
R DAC
IC814
IC815 (1/2)
LPF
Q810
DE EMP
RY801
OUT PUT SELECT SWITCH
IC816 (1/2)
LINE AMP
IC817 (1/2)
Q811
IC818 (1/2)
IC816 (2/2)
IC818 (2/2)
IC815 (2/2)
IC817 (2/2)
DS-27 BOARD (See page 71.)
ROTARY ENCODER SWITCH
MISS CHUCK SWITCH
DOOR SWITCH
CD SPDL SWITCH
CD IN LIMIT SWITCH
LD IN LIMIT SWITCH
CD MOVE MOTOR
CD SPINDLE MOTOR
TILT MOTOR
DS-27 BOARD (See page 71.)
IC819
+12V REG
RF DIGITAL +12V
ANALOG +12V
IC821
IC822
+5V REG
ANALOG +5V
IC820
-12V REG
RF DIGITAL -12V
ANALOG -12V
IC823
IC824
-5V REG
ANALOG -5V
REG
AF-49 BOARD (See page 76.)
IC604
IC606
IC605
IC607
AF +12V
AF +5V
AF -5V
AF -12V
TRANSEFORMER POWER
CK-9 BOARD
AC-37 BOARD (See page 86.)
AC IN 220/240V 50/60Hz
PS-188 BOARD (See page 86.)
SWITCHING REG
IC104
IC001
IC101
IC102
IC105
IC106
UNREG +16V
EVER +5V
REG +5V
REG +12V
REG +9V
REG -5V
REG -9V
UNREG -16V
-31V
IC204
PWM DRIVE
SPDL M
LD SPINDLE MOTOR
AF-49 BOARD (See page 76.)
BUFFER
2.3MHz BPF
2.8MHz BPF
AMP
IC603
DEMOD DOC BILINGUAL SWITCH
IC608
CX NR
IC609
LINE MUTE
RFU-2007 BOARD
RF MOD
ANT SW
VHF IN
VHF OUT
VIDEO IN
VIDEO OUT
FP-142 BOARD (See page 81.)
IC002
MOTE CONTROL
S001,002 S006–S012
KEY MATRIX
FLD
IC001
FP-143 BOARD (See page 81.)
S005
KEY MATRIX
SIRCS IN
LD SPDL FG
CD SPDL FG
SL-SENSE I, SL-SENSE II
CD DISC SENSE
SIRCS OUT
(See page 74.)
HP-44 BOARD
IC401
H.P AMP
H.P VOL
HEADPHONE
IN
OUT
CONTROL S
AUDIO OUT 1
AUDIO OUT 2
1 L
2 R
FL-10 BOARD
EUROCONNECTOR 21PIN
VIDEO
AUDIO 1/L
AUDIO 2/R
(See page 40.)
FG-12 BOARD (See page 60.)
FG-10 BOARD (See page 60.)
FG-11 BOARD (See page 56.)
DC-12 BOARD (See page 56.)

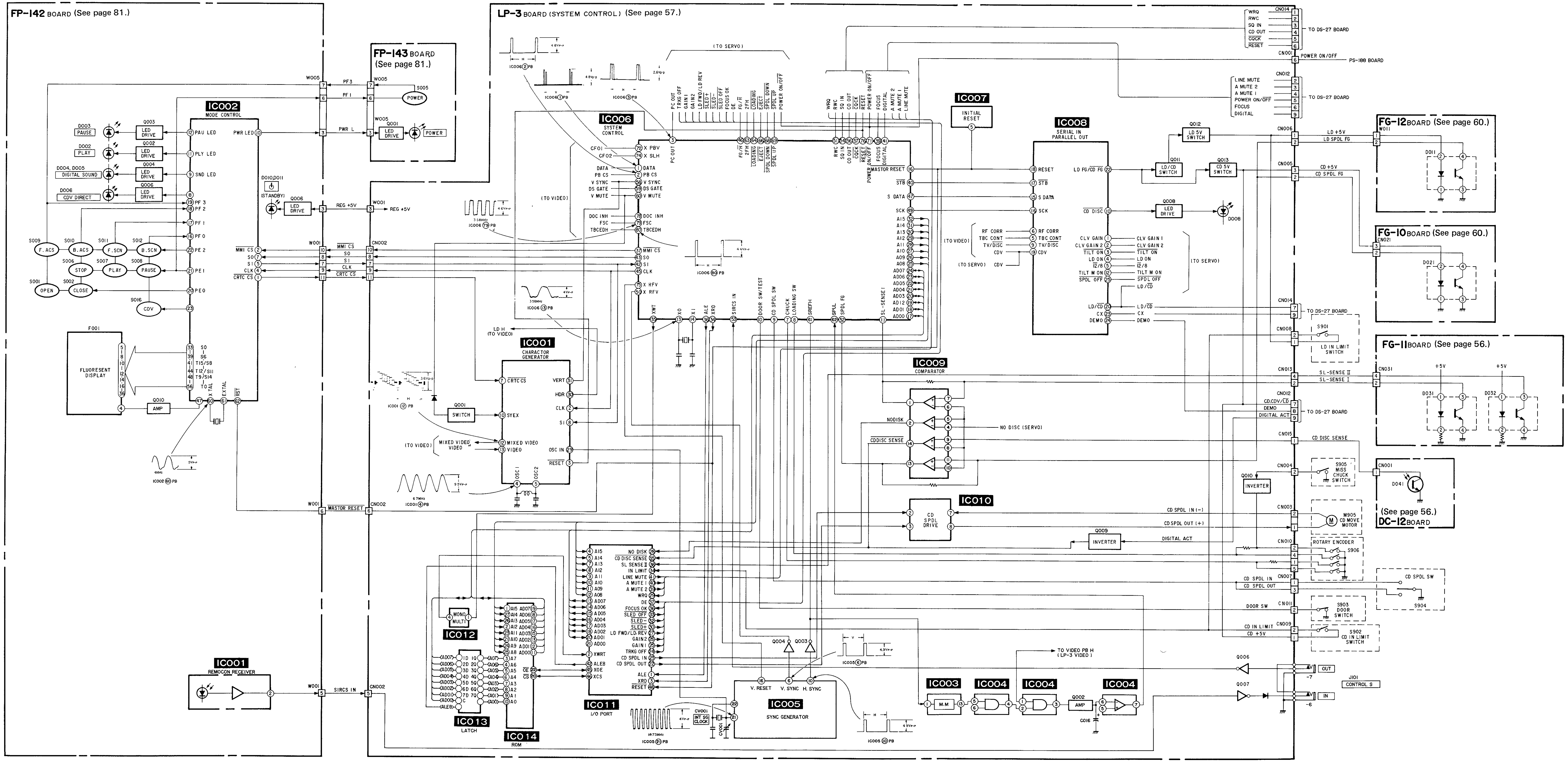
3-3. VIDEO BLOCK DIAGRAM


OPTICAL BLOCK
PS
PRE AMP
PHOTO DIODE
A
B
C
D
E
F
LP-3 BOARD(VIDEO) (See page 37.)
RF IN
CN401
RV101
RF LEVEL
Q101–103,166
RF AMP
RF CORR
TO AUDIO
V 0.5V/div
H 0.1usec/div
Q103 Ⓔ PB
FL101
7.5MHz BPF
Q104,105
RF AMP
IC101
DEMOD
LIMTER
MMV
MULTI PLYER
LIMITER
MM1
MM2
CLAMP & SL/CE
H 0.1usec/div
V 0.2V/div
IC101 ⑫ PB
FL102
LPF
Q106
DE EMPH
FL103
200ns DELAY
Q110
SWITCH
DOC INH
Q111-Q113
AMP
Q115
BUFFER
IC104
IC104 ② PB
0.9Vp-p
IC104 ⑦ PB
1Vp-p
IC104 ④ PB
IC104 ③ PB
0.34Vp-p
IC105
SYNC SEP
HD SEP
SYNC SEP
RIPPLE REDUCE
Q116
AMP
PB CS
4.8Vp-p
Q116 Ⓒ PB
Q114
SWITCH
DATA
DS GATE
(SYSTEM CONTROL)
RV102
DOC 1
Vcc 5V
4.5Vp-p
IC101 ③ PB
RV103
DOC 2
Q107
BUFFER
IC102
CCD 1H DELAY
Q108,Q109
AMP
LPF
0.45Vp-p
IC102 ⑤ PB
24PIN CONNECTOR
SYSCON CIRCUIT
CHARACTOR GENERATOR
CV IN
C VIDEO
IC001
24 PIN CONNECTOR
Q138,Q139
VIDEO MUTE
Q140,Q141
CLAMP
Q147
BUFFER
Q148
OUTPUT BUFFER
2Vp-p
Q148 Ⓔ PB
Q163
OUTPUT BUFFER
VIDEO IN
CNJ101
VIDEO OUT 1
1Vp-p
CNJ101 PB
RFU-2007
RF MODULATOR
VIDEO
I/G SELECTOR
G
I
RF CHANNEL
30
39
IN
OUT
AERIAL
IC106
Q117
BUFFER
CCD VARIABLE DELAY LINE
+5V
RV104
CCD BIAS
Q118
BUFFER
RV106
VIDEO OUTPUT LEVEL
Q142
LPF
Q124
BUFFER
FL104
LPF
Q125
BUFFER
Q126,Q127
AMP
Q130
FL105
3.58MHz TRAP
Q131,Q132
AMP
Q133,Q134
NOICAN LIMITER
Q135,Q136,Q137
NOICAN MIX
Q145,Q146
SYNC BUFFER
TBCED H
LDH
CF 01
CF 02
VOC 1
REF H
TV/DISC
TO LP-3 BOARD
(SYSTEM CONTROL)
IC108
TBC ERROR OSC
BURST GATE
CF101
FILTER
CBH GATE
S/H
RAMP GEN
REF 2.5V
DC LIM
0.65Vp-p
IC108 ㊲ PB
SYNC SEP
V SEP
TIMING GEN
HALF H KILLER
REF DC
RV107
TBCED H
+5V
V SYNC
(SYSTEM CONTROL)
0.9Vp-p
IC108 ⑤ PB
4.4Vp-p
IC108 ㉟ PB
Q144
SWITCH
TBC CONT
(SYSTEM CONTROL)
Q143
BUFFER
Q119,Q120
CONSTANT CURRENT SOURSE
Q121,Q122
TBC CLOCK OSC
IC107
CCD DRIVE CLOCK
IC109
TBC ERROR OSC
TBC CLOCK
RV105
-5V
CLR
Q161
PHASE SHIFT
PHASE SHIFT
Q162
Q128
BUFFER
Q123
BUFFER
3.75MHz TRAP
Q129
SWITCH
IC103
INVERTER
IC112
VIDEO SWITCH
IC111
CCD 1H DELAY
Q151
3FSC OSC
CLK
IN
OUT
RV108
CF CHROMA 1
Q152,Q153
2.25nS DELAY
Q154
BUFFER
Q155
AMP
IC110
VIDEO SWITCH
RV109
CF CHROMA 2
Y LPF
Q156
BUFFER
RV110
CF Y
Q157
MIX AMP
Q158,Q159
PHASE EQURIZER
Q160
BUFFER
Q164
SWITCH
VIDEO
-12V
1/L
AUDIO OUT 1
2/R
1/L
AUDIO OUT 2
2/R
AUDIO 1L
AUDIO 1R
AUDIO 2L
AUDIO 2R
TO DS-27 BOARD
CN807
CL-10 BOARD
(See page 40.)
CNJ051 21 PIN
EUROCONNECTOR
TO DS-27 BOARD
CN808
R OUT
L OUT
VIDEO OUT
-12V

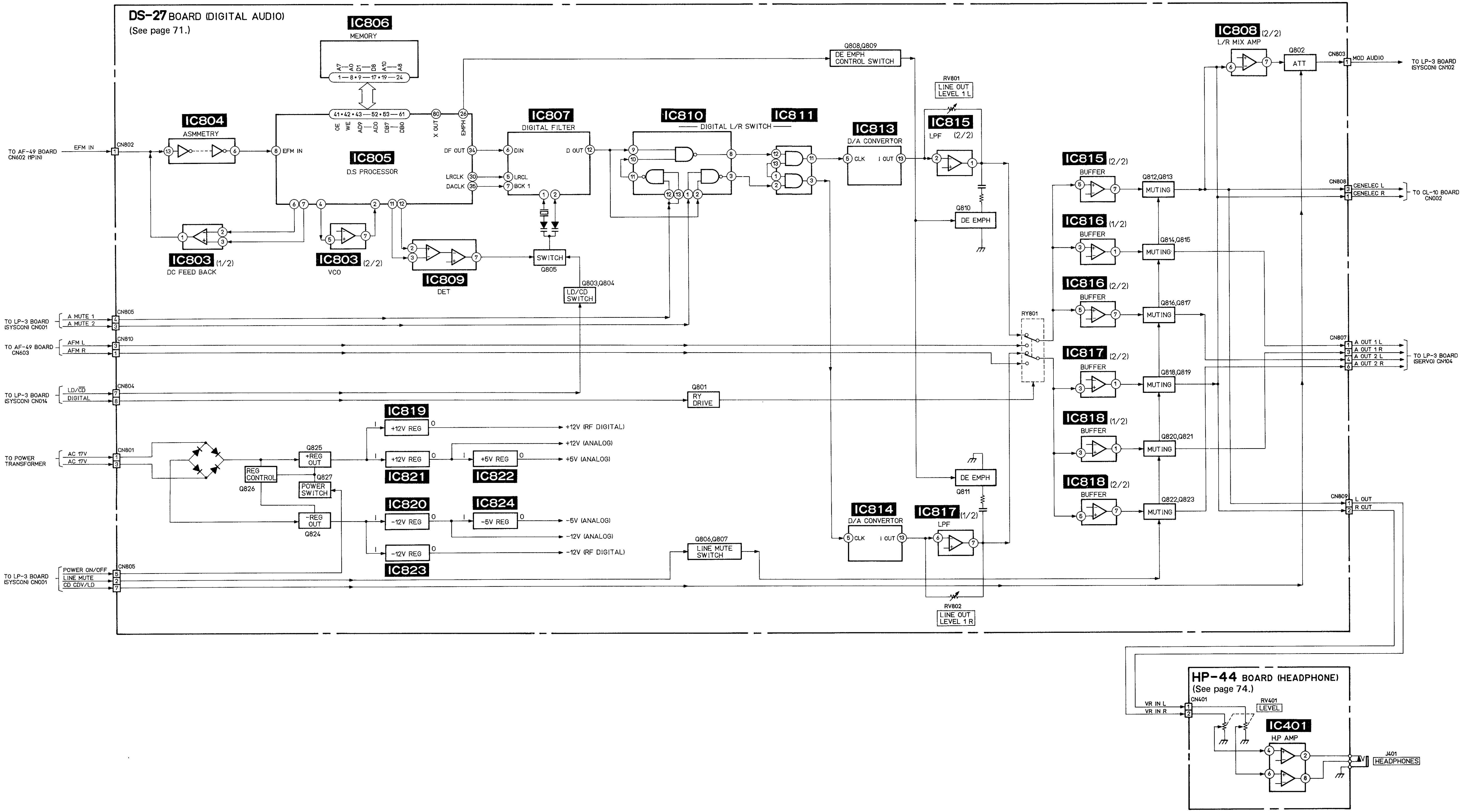
3-4. SERVO BLOCK DIAGRAM


LP-3 BOARD (SERVO) (See page 51.)
OPTICAL BLOCK (1/3)
PHOTO DIODE
TO DS-27 BOARD
IC403 F/T MATRIX AMP
IC411 (2/3) LD/CD SWITCH
IC411 (3/3) FOCUS SWITCH
LD FOCUS OFFSET
CD FOCUS OFFSET
RV404
RV403
FOCUS OK (TO SYSTEM CONTROL)
LD ON (TO SYSTEM CONTROL)
IC421 (2/2) BRAKE TIMING DET
IC408 (1/2) COMPARISON AMP
IC408 (2/2) COMPARISON AMP
DE (SYSTEM CONTROL)
HFL (AUDIO)
FOCUS SWITCH
Q416, 418
IC407 FOCUS M DRIVE
IC405 (1/2) FOCUS CONTROL
FOCUS GAIN
RV406
FZO (AUDIO)
CN402 7 6 FOCUS(Y) FOCUS(X)
PH
FOCUS M
FOCUS RTN
FOCUS COIL
IC420 E-F NOICAN
IC422 E-F NOICAN
Q434 E-F NOICAN
IC421 (1/2) NOISE DET
CN402 (SYSCON) (AUDIO) ⑤ TRKG OFF T OFF
(SYSCON) GAIN 2
CD TRKG JUMP
RV410
IC590 APC DRIVE
APC LD
LD ON
Q401 Q410 SWITCH
RV401 CD TRKG OFFSET
RV405 LD TRKG OFFSET
TRVS CN402 ①
CF CN402 ⑨
T6L
(AUDIO)
LD/CD Q417
IC411 (1/3) GAIN SWITCH
IC423 SWITCH
(SYSCON) THLD
Q430-433 E-F UNBALANCE COMPENSATION
LD TRKG GAIN
RV407
IC552 (2/2) PHASE COMPENSATION
TRKG(Y) CN402 ⑧
IC402 (1/3) LD/CD SWITCH
LD/CD (SYSTEM CONTROL)
IC402 CD SWITCH
IC402 LD CD HOLD
RV411
CD TRKG GAIN
TRKG(X) CN402 ③
IC410 AMP
Q406 Q415
Q406, Q415 TRKG M DRIVE
TRKG RTN
TRKG M
TRKG COIL
IC423 LD/CD SLED COMPENSATION
IC405 (2/2) AMP
IC406 SLED M DRIVE
Q403-405 SLED SWITCH
SLED OFF CN402 ④
SLED SEND CIRCUIT
Q407-409
GAIN 1 (SYSCON)
SLED+ SLED-
MECHANCAL BLOCK
SLED M
IC401 CD DIFECT DET
IC401 CD DIFECT SHAPE
IC550 PHASE COMPENSATION
IC552 AMP
RV552
LD SKEW
TILT ON
IC642 LOOP SWITCH
CN402 ④ SLED OFF
IC642 LOOP SWITCH
IC640 (1/4) TILT PHASE COMPENSATION
IC640 (2/4) TILT PHASE COMPENSATION
IC640 (3/4-4/4) WINDOW AMP
Q640 WINDOW SWITCH
Q641 WINDOW SWITCH
LOADING
EJECT
Q642-644 LOADING EJECT SWITCH
IC641 TILT M & LOADING EJECT DRIVE
TILT M ON (SYSTEM CONTROL)
Q649,648 SWITCH
Q645,646 SWITCH
TILT M RTN
TILT M
TILT IN
TILT OUT
NO DISC (SYSTEM CONTROL)
IC550 PHASE COMPENSATION
IC604 (4/4) COMPARATOR
IC604 (1/4) CD PHASE COMPENSATON
IC604 (2/4) CD PHASE COMPENSATION
CLV - CLV + (AUDIO)
IC600 INDEMNICATION AMP
IC600 INTEGRAL AMP
PC OUT (SYSTEM CONTROL)
IC601 GAIN SWITCH
CLV GAIN 1 CLV GAIN 2 8/12 (SYSTEM CONTROL)
Q602-604 SPDL UP/DOWN SWITCH
SPDL UP SPDL DOWN
IC605 LOOP SWITCH2
IC605 LOOP SWITCH1
FG/R (SYSTEM CONTROL)
IC604 (3/4) CDV ERROR AMP
IC602 LOOP SWITCH
IC602 LOOP SWITCH
LD/CD
IC603 CDV, CD SPDL M DRIVE
CD SPDL M
SPDL ERROR
Q666 SWITCH
CDV
(LD/CD)-CDV (SYSTEM CONTROL)
CN401 CN402 CN403 CN601 CN600 CN602 CN603
IC430 (1/3) JP TRG SWITCH
IC432 (1/6, 2/6) INVERTER
Q411 75µS MONO MULTIC
IC432 (3/6) INVERTER
JP+ JP-
(SYSCON) LD FWD/LD REV
IC433 COMPENSATION
IC430 (2/3) LD FWD/REV SWITCH
IC432 (5/6) INVERTER
IC432 (6/6) INVERTER
IC430 (2/3) LD FWD/REV SWITCH
IC432 (4/6) INVERTER
IC431 (2/2) GAIN SWITCH
RV408 LD±TJ
IC431 (1/2) GAIN SWITCH
(SYSCON) GAIN2 CD
PS-188 BOARD (1/2) (LD SPINDLE SERVO) (See page 86.)
IC201 (2/2) VOLTAGE F
IC202 LIMITTER AMP
Q203,204 PWM SPDL ACCEL DRIVE
IC204 LD SPDL M DRIVE
IC201 (1/2) CLIP VOLTAGE F
Q205,206 PWM SPDL BRAKE DRIVE
L201
SPDL MOTOR (+)
SPDL MOTOR (-)
LD SPDL M
MECHANICAL BLOCK
2FH
Q201 SAW WAVE
IC203 (1/2) INVERT SAW WAVE
Q202 SWITCH
Q207 SWITCH
IC203 (1/2) ERROR DET
(SYSTEM CONTROL) SPDL OFF
CN201 CN202
+5V -5V +9V -9V +16V -16V

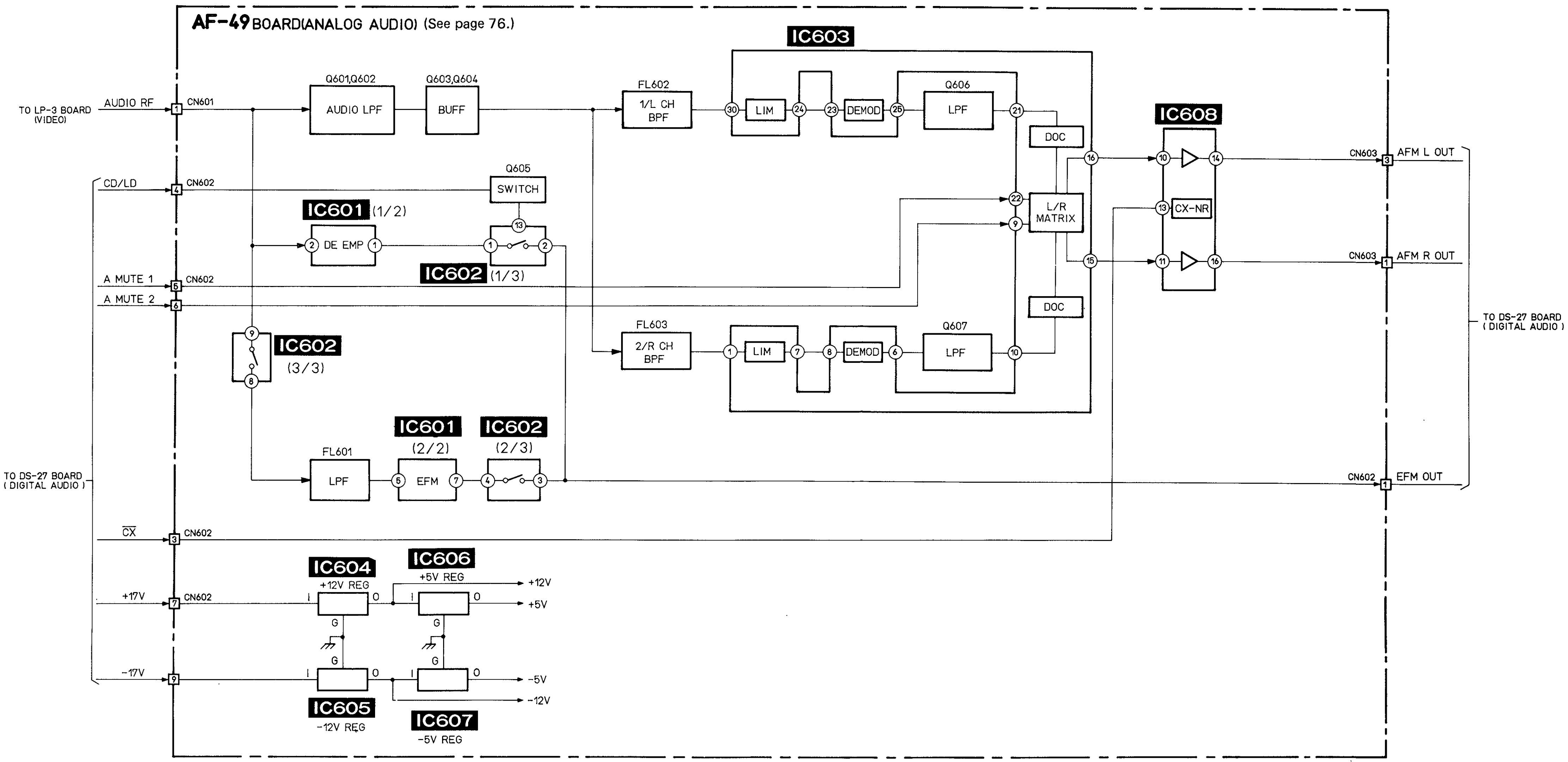
3-5. SYSTEM CONTROL BLOCK DIAGRAM


FP-142 BOARD (See page 81.)
FP-143 BOARD (See page 81.)
LP-3 BOARD (SYSTEM CONTROL) (See page 57.)
IC002 MODE CONTROL
IC006 SYSTEM CONTROL
IC001 CHARACTOR GENERATOR
IC007 INITIAL RESET
IC008 SERIAL IN PARALLEL OUT
IC009 COMPARATOR
IC010 CD SPDL DRIVE
IC011 I/O PORT
IC012 MONO MULTI
IC013 LATCH
IC014 ROM
IC005 SYNC GENERATOR
IC003 M.M
IC004
IC001 REMOCON RECEIVER
F001 FLUORESENT DISPLAY
S009 F.ACS
S010 B.ACS
S011 F.SCN
S012 B.SCN
S006 STOP
S007 PLAY
S008 PAUSE
S001 OPEN
S002 CLOSE
S016 CDV
S005 POWER
D003 PAUSE
D002 PLAY
D004, D005 DIGITAL SOUND
D006 CDV DIRECT
D010, D011 (STANDBY)
LED DRIVE
REG +5V
MASTOR RESET
SIRCS IN
(TO SERVO)
(TO VIDEO)
CN014 TO DS-27 BOARD
CN001 POWER ON/OFF PS-188 BOARD
CN012 TO DS-27 BOARD
FG-12 BOARD (See page 60.)
FG-10 BOARD (See page 60.)
FG-11 BOARD (See page 56.)
(See page 56.) DC-12 BOARD
LD 5V SWITCH
LD/CD SWITCH
CD 5V SWITCH
S901 LD IN LIMIT SWITCH
S905 MISS CHUCK SWITCH
M905 CD MOVE MOTOR
ROTARY ENCODER S906
S904 CD SPDL SW
S903 DOOR SWITCH
S902 CD IN LIMIT SWITCH
NO DISC (SERVO)
Q010 INVERTER
Q009 INVERTER
Q001 SWITCH
Q002 AMP
TO VIDEO PB H (LP-3 VIDEO)
J101 CONTROL S
OUT
IN

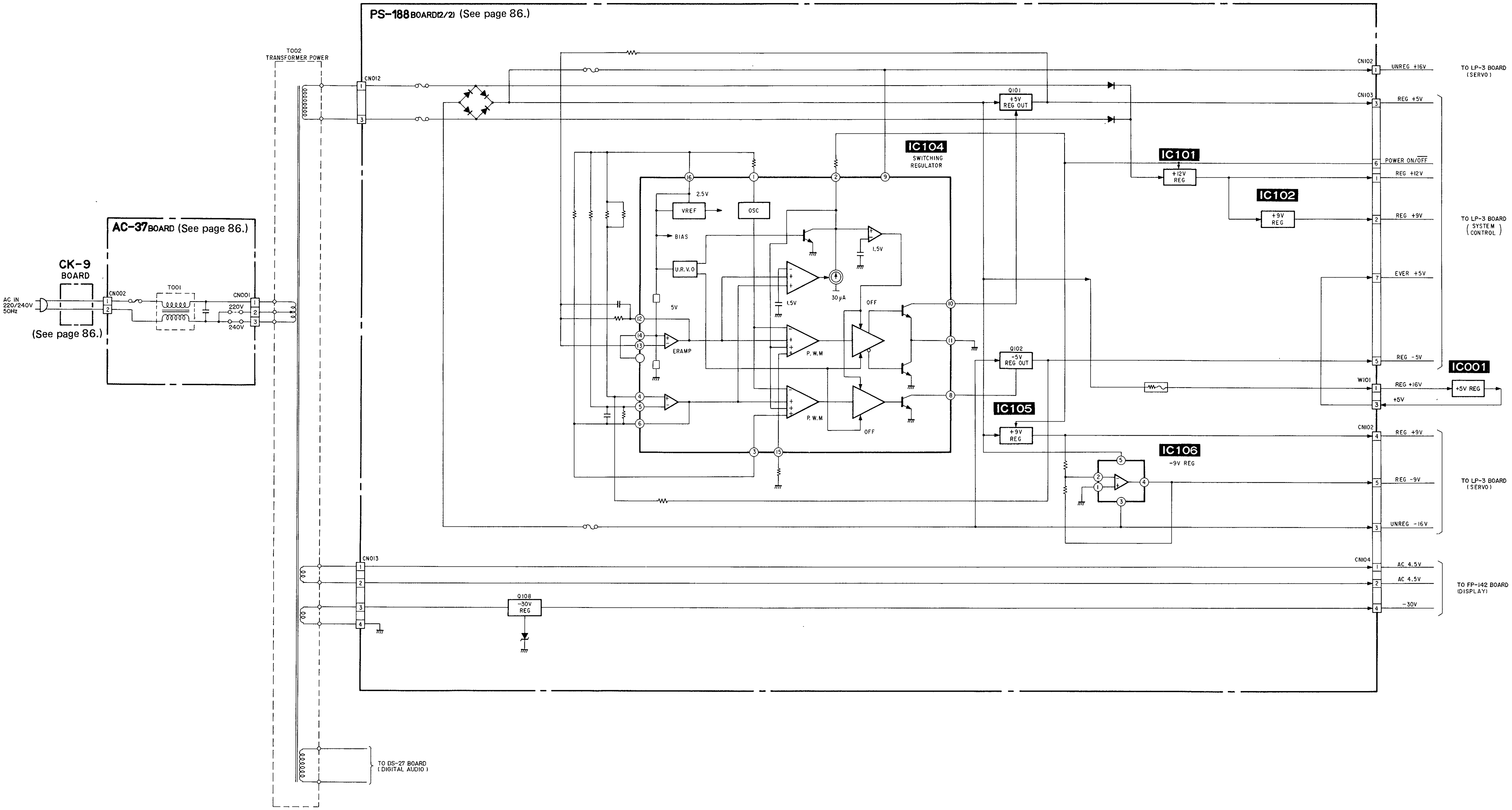
3-6. AUDIO BLOCK DIAGRAM (1)


DS-27 BOARD (DIGITAL AUDIO)
(See page 71.)
IC806
MEMORY
A7 A0 D1 D8 A10 A8
1 — 8 • 9 — 17 • 19 — 24
41 • 42 • 43 — 52 • 53 — 61
OE WE A09 A00 DB7 DB0
X OUT
EMPH
IC804
ASMMETRY
IC805
DS PROCESSOR
EFM IN
DF OUT
LRCLK
DACLK
IC807
DIGITAL FILTER
DIN
LRCL
BCK 1
D OUT
IC810
DIGITAL L/R SWITCH
IC811
IC813
D/A CONVERTOR
CLK
I OUT
Q808,Q809
DE EMPH
CONTROL SWITCH
RV801
LINE OUT
LEVEL 1 L
IC815
LPF (2/2)
Q810
DE EMPH
IC803 (1/2)
DC FEED BACK
IC803 (2/2)
VCO
IC809
DET
SWITCH
Q805
Q803,Q804
LD/CD
SWITCH
TO AF-49 BOARD
CN602 (11PIN)
EFM IN
CN802
TO LP-3 BOARD
(SYSCON) CN001
A MUTE 1
A MUTE 2
CN805
TO AF-49 BOARD
CN603
AFM L
AFM R
CN810
TO LP-3 BOARD
(SYSCON) CN014
LD/CD
DIGITAL
CN804
Q801
RY
DRIVE
TO POWER
TRANSFORMER
AC 17V
AC 17V
CN801
Q825
+REG
OUT
REG
CONTROL
Q826
Q827
POWER
SWITCH
-REG
OUT
Q824
IC819
+12V REG
+12V (RF DIGITAL)
IC821
+12V REG
+12V (ANALOG)
IC822
+5V REG
+5V (ANALOG)
IC820
-12V REG
-12V (ANALOG)
IC824
-5V REG
-5V (ANALOG)
IC823
-12V REG
-12V (RF DIGITAL)
TO LP-3 BOARD
(SYSCON) CN001
POWER ON/OFF
LINE MUTE
CD CDV/LD
CN805
Q806,Q807
LINE MUTE
SWITCH
IC814
D/A CONVERTOR
CLK
I OUT
IC817 (1/2)
LPF
Q811
DE EMPH
RV802
LINE OUT
LEVEL 1 R
RY801
IC815 (2/2)
BUFFER
Q812,Q813
MUTING
IC816 (1/2)
BUFFER
Q814,Q815
MUTING
IC816 (2/2)
BUFFER
Q816,Q817
MUTING
IC817 (2/2)
BUFFER
Q818,Q819
MUTING
IC818 (1/2)
BUFFER
Q820,Q821
MUTING
IC818 (2/2)
BUFFER
Q822,Q823
MUTING
IC808 (2/2)
L/R MIX AMP
Q802
ATT
CN803
MOD AUDIO
TO LP-3 BOARD
(SYSCON) CN102
CN808
CENELEC L
CENELEC R
TO CL-10 BOARD
CN002
CN807
A OUT 1 L
A OUT 1 R
A OUT 2 L
A OUT 2 R
TO LP-3 BOARD
(SERVO) CN104
CN809
L OUT
R OUT
HP-44 BOARD (HEADPHONE)
(See page 74.)
CN401
VR IN L
VR IN R
RV401
LEVEL
IC401
HP AMP
J401
HEADPHONES

3-7. AUDIO BLOCK DIAGRAM (2)


AF-49 BOARD(ANALOG AUDIO) (See page 76.)
TO LP-3 BOARD (VIDEO)
AUDIO RF
CN601
CD/LD
CN602
A MUTE 1
A MUTE 2
TO DS-27 BOARD (DIGITAL AUDIO)
CX
+17V
-17V
Q601,Q602
AUDIO LPF
Q603,Q604
BUFF
Q605
SWITCH
IC601 (1/2)
DE EMP
IC602 (1/3)
IC602 (3/3)
FL601
LPF
IC601 (2/2)
EFM
IC602 (2/3)
FL602
1/L CH BPF
FL603
2/R CH BPF
IC603
LIM
DEMOD
Q606
LPF
Q607
LPF
DOC
L/R MATRIX
DOC
IC608
CX-NR
CN603
AFM L OUT
CN603
AFM R OUT
CN602
EFM OUT
TO DS-27 BOARD (DIGITAL AUDIO)
IC604
+12V REG
IC606
+5V REG
IC605
-12V REG
IC607
-5V REG
I
O
G
+12V
+5V
-5V
-12V

3-8. POWER BLOCK DIAGRAM


PS-188 BOARD(2/2) (See page 86.)
T002
TRANSFORMER POWER
AC-37 BOARD (See page 86.)
CK-9
BOARD
(See page 86.)
AC IN
220/240V
50Hz
CN002
T001
CN001
220V
240V
CN012
CN013
Q101
+5V
REG OUT
Q102
-5V
REG OUT
Q108
-30V
REG
IC104
SWITCHING
REGULATOR
2.5V
VREF
OSC
BIAS
U.R.V.O
5V
ERAMP
1.5V
30μA
OFF
P.W.M
IC101
+12V
REG
IC102
+9V
REG
IC105
+9V
REG
IC106
-9V REG
IC001
+5V REG
CN102
UNREG +16V
TO LP-3 BOARD
(SERVO)
CN103
REG +5V
POWER ON/OFF
REG +12V
REG +9V
TO LP-3 BOARD
(SYSTEM CONTROL)
EVER +5V
REG -5V
W101
REG +16V
+5V
CN102
REG +9V
REG -9V
UNREG -16V
TO LP-3 BOARD
(SERVO)
CN104
AC 4.5V
AC 4.5V
-30V
TO FP-142 BOARD
(DISPLAY)
TO DS-27 BOARD
(DIGITAL AUDIO)

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ▨ : Pattern from the side which enables seeing.
- Circled numbers refer to waveforms.

For schematic diagram:

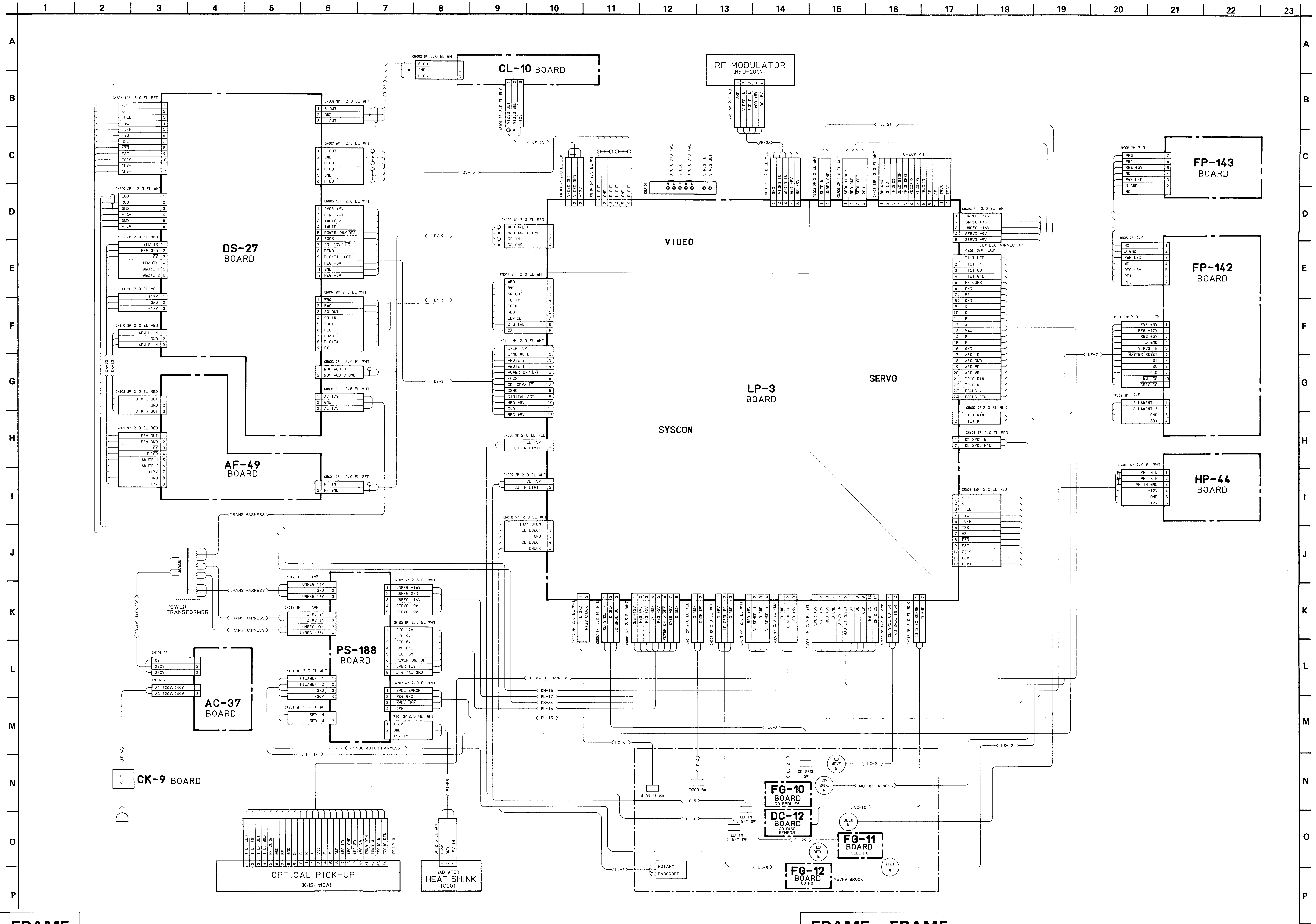
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair.*
- ▬▬ : B+ line.*
- ▬ ▬ : B– line.*
- Voltages are dc between measurement points and ground unless otherwise noted.*
- Readings are taken with a color-bar signal playback.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : IN/OUT direction of B line (+, –).*
- Circled numbers refer to waveforms.*

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

***: indicated by the color red.**

4-1. FRAME SCHEMATIC DIAGRAM

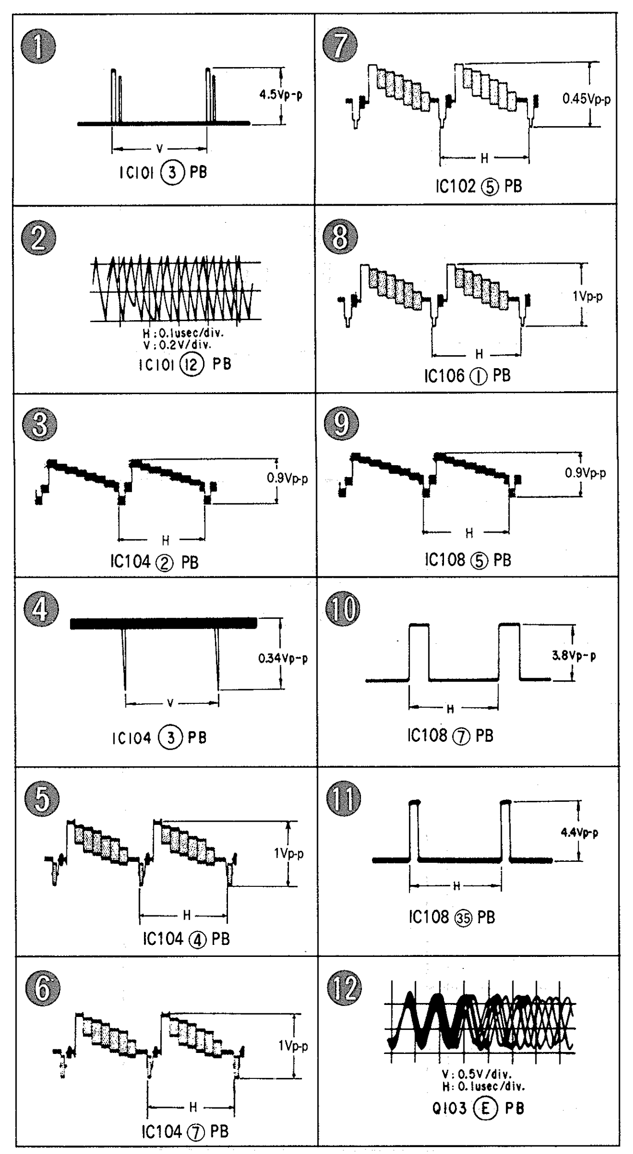


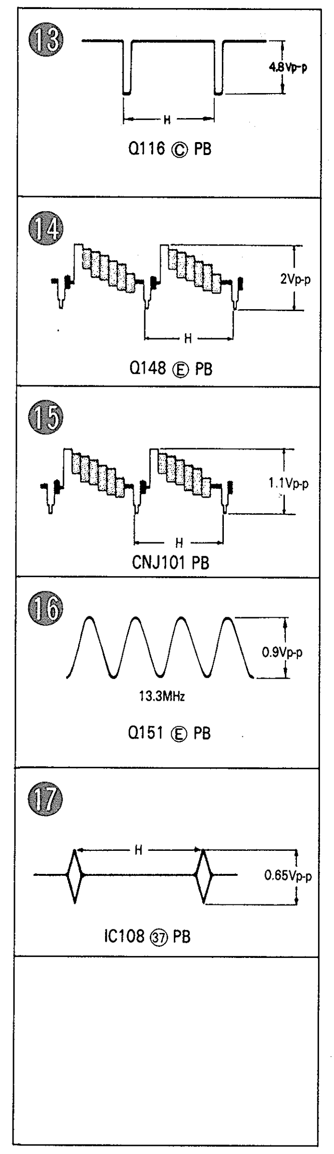
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
A B C D E F G H I J K L M N O P
CL-10 BOARD
RF MODULATOR
(RFU-2007)
DS-27
BOARD
AF-49
BOARD
VIDEO
LP-3
BOARD
SYSCON
SERVO
CHECK PIN
FLEXIBLE CONNECTOR
FP-143
BOARD
FP-142
BOARD
HP-44
BOARD
PS-188
BOARD
AC-37
BOARD
CK-9 BOARD
POWER
TRANSFORMER
TRANS HARNESS
SPINDL MOTOR HARNESS
FREXIBLE HARNESS
MOTOR HARNESS
OPTICAL PICK-UP
(KHS-110A)
RADIATOR
HEAT SHINK
IC001
FG-10
BOARD
CD SPDL FG
DC-12
BOARD
CD DISC SENSOR
FG-11
BOARD
SLED FG
FG-12
BOARD
LD FG
MECHA BROCK
ROTARY ENCODER
MISS CHUCK
DOOR SW
CD IN LIMIT SW
LD IN LIMIT SW
CD SPDL SW
CD MOVE M
CD SPDL M
SLED M
LD SPDL M
TILT M
CV-15
DV-10
DV-9
DY-2
DY-3
VR-33
LS-21
LS-22
LF-7
FF-51
DA-33
DA-32
DS-23
DH-15
PL-17
DR-34
PL-16
PL-15
LC-7
LC-6
LC-9
LC-10
LC-5
LC-4
LC-21
CL-29
LL-4
LL-5
LL-2
PF-14
PT-55
KS-63

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

LP-3 (VIDEO SIGNAL PROCESSING)
AND
CL-10 (EURO CONNECTOR)
SCHEMATIC DIAGRAM

– Ref. No. LP-3 and CL-10 BOARDS: 1,000 series –





LP-3 BOARD (VIDEO)
IC101 M51481P DEMOD
IC102 CXL5003P CCD 1H DELAY
IC103 INVERTER
IC104 DOC SWITCH
IC105 SYNC SEP
IC106 TBC CCD
IC107 TBC CLOCK DRIVE
IC108 TBC ERROR OSC
IC109 SN74LS221NS MONO MULTI
IC110 VIDEO SWITCH
IC111 CXL5003P CCD 1H DELAY
IC112 VIDEO SWITCH
Q101-Q103 RF AMP
Q104,Q105 RF AMP
Q106 DE EMPHASIS
Q107 BUFFER
Q108,Q109 COMON BASE AMP
Q110 SWITCH CONTROL
Q111-Q113 AMP
Q114 SWITCH
Q115 BUFFER
Q116 AMP
Q117 CCD IN BUFFER
Q118 CCD OUT BUFFER
Q119,Q120 TBC CLOCK OSC
Q121,Q122 TBC CLOCK OSC
Q123 BUFFER
Q124,Q125 BUFFER
Q126-Q128 BUFFER
Q129 SWITCH
Q130-Q132 AMP
Q133,Q134 NOISE CANCEL LIMITTER
Q135-Q137 NOISE CANCEL MIX AMP
Q138,Q139 VIDEO MUTE
Q140,Q141 CLAMP BUFFER
Q142 LPF
Q143 BUFFER
Q144 SWITCH
Q145,Q146 SYNC BUFFER
Q147 BUFFER
Q148 OUT PUT BUFFER
Q149,Q150 CHROMA BPF
Q151 3Fsc OSC
Q152,Q153 2.26ns DELAY
Q154 BUFFER
Q155 AMP
Q156 BUFFER
Q157 MIX AMP
Q158,Q159 PHASE EQ
Q160 BUFFER
Q161,Q162 PHASE SHIFT
Q163 OUT PUT BUFFER
Q164 TV/DISC SWITCH
RV101 RF LEVEL
RV102 DOC ADJ
RV103 DOC ADJ 2
RV104 CCD BIAS ADJ
RV105 TBC CLOCK
RV106 VIDEO OUTPUT LEVEL ADJ
RV107 TBC IC ADJ
RV108 COLOR FRAMING CHROMA LEVEL 1
RV109 COLOR FRAMING CHROMA LEVEL 2
RV110 COLOR FRAMING Y LEVEL
TO LP-3 BOARD (SERVO) (See page 51.)
TO DS-27 BOARD CN803 (See page 71.)
TO AF-49 BOARD CN601 (See page 76.)
TO LP-3 BOARD (SYSTEM CONTROL) (See page 57.)
TO DS-27 BOARD CN807 (See page 74.)
TO DS-27 BOARD CN808 (See page 74.)
RFU-2007 RF MODULATOR
LOCAL — DX
I/G SELECTOR
RF CHANNEL
IN
OUT
AERIAL
CL-10 BOARD
CNJ051 21P EUROCONNECTOR
AUDIO OUT 1
AUDIO OUT 2
VIDEO OUT
IC102 CXL5003P
AUTOBIAS CIRCUIT
CLAMP CIRCUIT
848BIT SHIFT REGISTER
CLOCK DRIVERS
DUTY CONTROL CIRCUIT
S/H
AMP
ref.
VSS
VCL
VDD

Note:

- Signal path
  - ⇨ : PB Y/CHROMA Signal
  - ⇨ : **PB AUDIO Signal**

Spindle servo (speed and phase)	⋙

LP-3 (VIDEO SIGNAL PROCESSING)
AND
CL-10 (EURO CONNECTOR)
PRINTED WIRING BOARDS

– Ref. No. LP-3 and CL-10 BOARDS: 1,000 series –

Note:
- ⊗ : Through hole.
- ▨ : Pattern of the rear side.

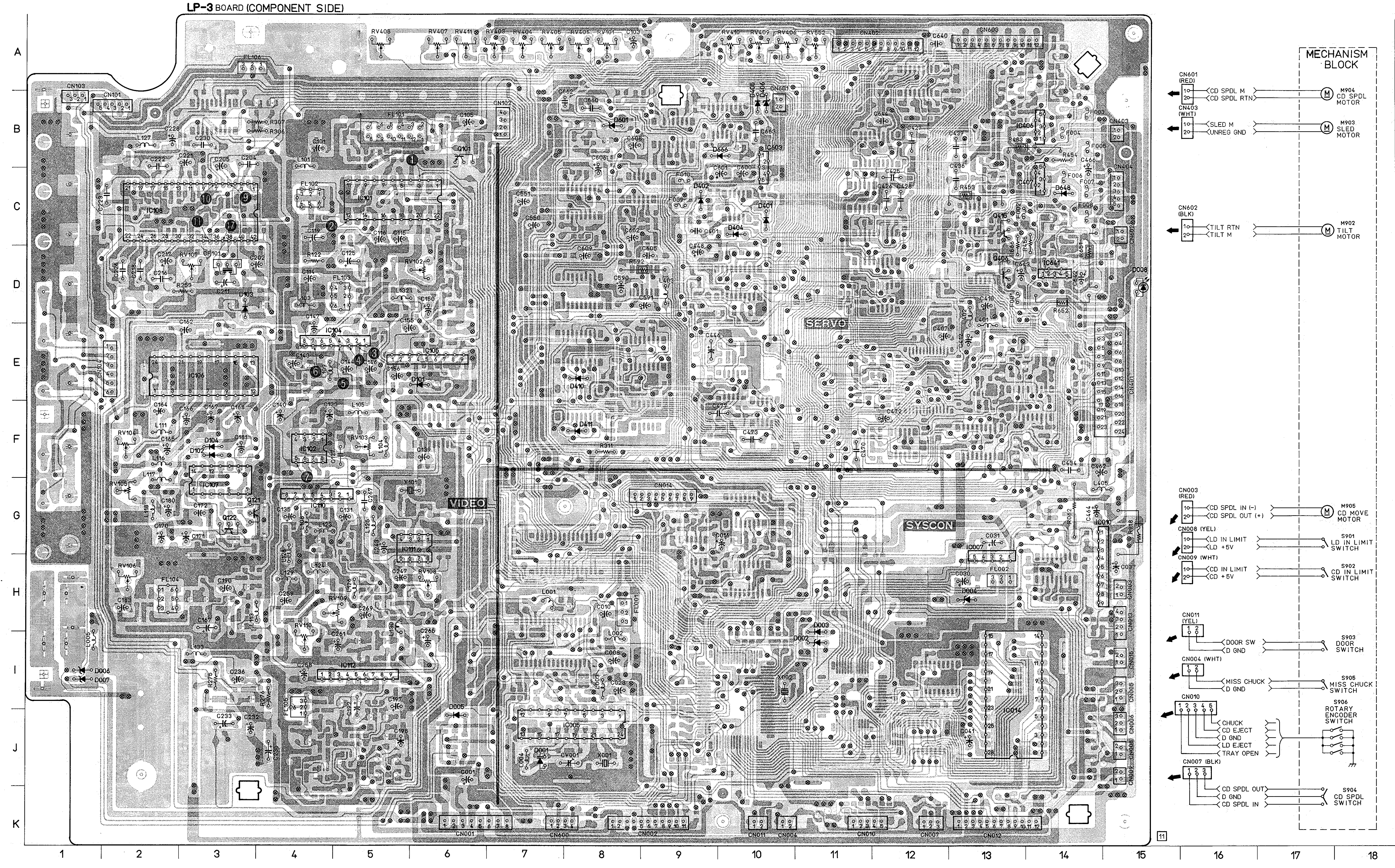
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

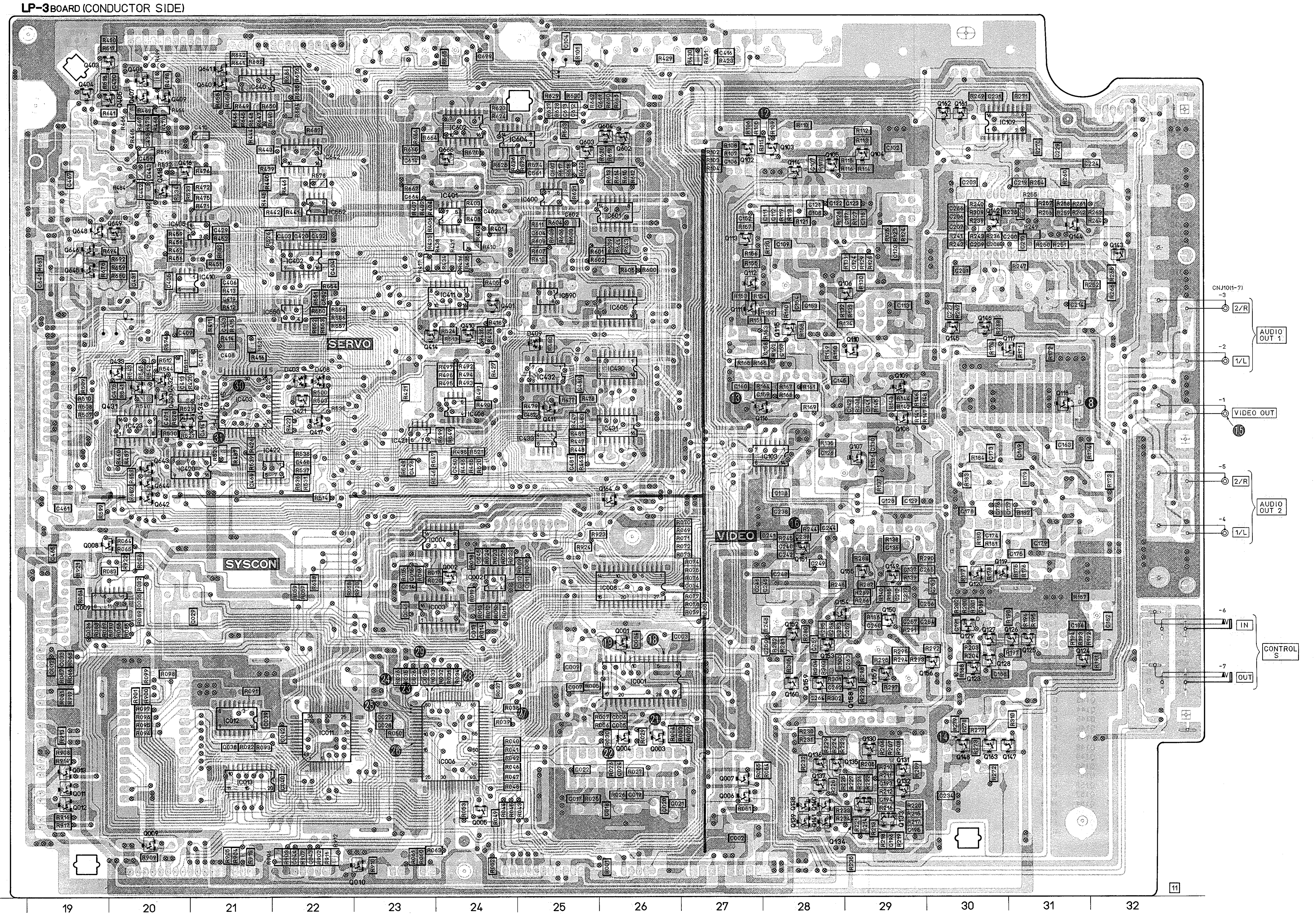
LP-3 BOARD

CN001	K-6
CN002	K-9
CN003	H-15
CN004	K-10
CN005	I-15
CN006	J-15
CN007	K-12
CN008	J-15
CN009	J-15
CN010	K-11
CN011	K-10
CN012	K-13
CN013	H-15
CN014	G-9
CN015	I-15
CN101	B-2
CN102	B-7
CN103	B-1
CN104	E-2
CN401	E-15
CN402	A-12
CN403	B-15
CN404	C-15
CN600	K-7
CN601	B-10
CN602	C-15
CN603	A-13
CV001	J-8
D001	J-7
D002	I-11
D003	I-11
D004	H-13
D005	J-6
D006	I-1
D007	I-1
D008	D-15
D101	E-6
D102	F-3
D103	D-3
D104	F-3
D401	C-10
D402	C-9
D403	E-22
D404	C-10
D405	B-10
D406	B-10
D408	E-22
D409	E-25
D410	E-8
D411	F-8
D601	B-8
D648	C-14
D666	B-10
IC001	I-26
IC002	H-24
IC003	H-24
IC004	G-24
IC005	J-8
IC006	J-24
IC007	H-13
IC008	H-26
IC009	H-19
IC010	H-15
IC011	J-22
IC012	I-21
IC013	J-21
IC014	I-13
IC101	C-5
IC102	F-4
IC103	F-28
IC104	E-4
IC105	E-6
IC106	E-3
IC107	G-3
IC108	C-3
IC109	B-30
IC110	G-4
IC111	G-6
IC112	I-5
IC401	C-24
IC402	D-22
IC403	E-21
IC405	C-21
IC406	B-14
IC407	C-14
IC408	E-24
IC410	D-20
IC411	D-24
IC420	F-20
IC421	F-23
IC422	F-22
IC423	F-20
IC430	E-26
IC431	F-26
IC432	E-25
IC433	F-25
IC550	D-22
IC552	C-22
IC590	D-25
IC600	C-25
IC601	C-26
IC602	B-24
IC603	B-10
IC604	B-25
IC605	D-26
IC640	B-21
IC641	D-14
IC642	B-22
Q001	H-26
Q002	H-24
Q003	J-26
Q004	J-26
Q005	J-24
Q006	J-27
Q007	J-27
Q008	G-19
Q009	K-20
Q010	K-23
Q011	J-19
Q012	J-19
Q013	J-19
Q101	B-6
Q102	B-27
Q103	B-28
Q104	B-29
Q105	C-28
Q106	D-29
Q107	F-29
Q108	F-29
Q109	E-29
Q110	E-29
Q111	D-27
Q112	D-27
Q113	C-27
Q114	C-28
Q115	E-28
Q116	E-28
Q117	E-31
Q118	E-31
Q119	H-30
Q120	H-30
Q121	G-3
Q122	G-3
Q123	I-30
Q124	I-31
Q125	H-31
Q126	H-31
Q127	H-30
Q128	I-30
Q129	H-30
Q130	J-29
Q131	J-29
Q132	J-29
Q133	K-29
Q134	J-29
Q135	J-28
Q136	J-28
Q137	J-28
Q138	J-28
Q139	K-28
Q140	J-28
Q141	K-28
Q142	C-30
Q143	D-32
Q144	C-31
Q145	E-30
Q146	E-30
Q147	J-31
Q148	J-30
Q149	H-29
Q150	H-29
Q151	G-28
Q152	I-28
Q153	H-28
Q154	H-28
Q155	H-29
Q156	I-30
Q157	I-29
Q158	I-29
Q159	I-28
Q160	I-28
Q161	B-30
Q162	B-30
Q163	J-30
Q164	G-26
Q401	D-24
Q403	A-19
Q404	B-19
Q405	B-19
Q406	D-13
Q407	B-20
Q408	A-20
Q409	B-20
Q410	E-24
Q411	E-25
Q414	E-23
Q415	C-13
Q416	C-20
Q417	F-22
Q418	C-20
Q421	E-22
Q430	E-20
Q431	E-20
Q432	E-20
Q433	E-20
Q434	F-20
Q602	B-26
Q603	B-25
Q604	B-26
Q640	B-21
Q641	A-21
Q642	G-20
Q643	F-20
Q644	F-20
Q645	D-19
Q646	D-19
Q648	C-19
Q649	C-20
Q666	B-24
RV101	A-8
RV102	D-6
RV103	F-5
RV104	F-2
RV105	G-2
RV106	H-2
RV107	D-3
RV108	H-6
RV109	H-5
RV110	I-4
RV401	A-8
RV403	A-7
RV404	A-7
RV405	A-7
RV406	A-10
RV407	A-6
RV408	A-5
RV409	A-10
RV410	A-10
RV411	A-6
RV552	A-11

LP-3 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
J
K
SERVO
VIDEO
SYSCON
MECHANISM BLOCK
CN601 (RED)
1 CD SPDL M
2 CD SPDL RTN
M904 CD SPDL MOTOR
CN403 (WHT)
1 SLED M
2 UNREG GND
M903 SLED MOTOR
CN602 (BLK)
1 TILT RTN
2 TILT M
M902 TILT MOTOR
CN003 (RED)
1 CD SPDL IN (−)
2 CD SPDL OUT (+)
M905 CD MOVE MOTOR
CN008 (YEL)
1 LD IN LIMIT
2 LD +5V
S901 LD IN LIMIT SWITCH
CN009 (WHT)
1 CD IN LIMIT
2 CD +5V
S902 CD IN LIMIT SWITCH
CN011 (YEL)
DOOR SW
D GND
S903 DOOR SWITCH
CN004 (WHT)
MISS CHUCK
D GND
S905 MISS CHUCK SWITCH
CN010
CHUCK
CD EJECT
D GND
LD EJECT
TRAY OPEN
S906 ROTARY ENCODER SWITCH
CN007 (BLK)
CD SPDL OUT
D GND
CD SPDL IN
S904 CD SPDL SWITCH
11
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

LP-3 BOARD (CONDUCTOR SIDE)


SERVO
SYSCON
VIDEO
CNJ10(1-7)
-3 2/R
-2 1/L
AUDIO OUT 1
-1 VIDEO OUT
15
-5 2/R
-4 1/L
AUDIO OUT 2
-6 IN
-7 OUT
CONTROL S
11
19
20
21
22
23
24
25
26
27
28
29
30
31
32

LP-3 (SERVO) PRINTED WIRING BOARD

– Ref. No. LP-3 BOARD: 1,000 series –

Note:

- ⊗ : Through hole.
- ▨ : Pattern of the rear side.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

LP-3 BOARD

CN001	K-6
CN002	K-9
CN003	H-15
CN004	K-10
CN005	I-15
CN006	J-15
CN007	K-12
CN008	J-15
CN009	J-15
CN010	K-11
CN011	K-10
CN012	K-13
CN013	H-15
CN014	G-9
CN015	I-15
CN101	B-2
CN102	B-7
CN103	B-1
CN104	E-2
CN401	E-15
CN402	A-12
CN403	B-15
CN404	C-15
CN600	K-7
CN601	B-10
CN602	C-15
CN603	A-13
CV001	J-8
D001	J-7
D002	I-11
D003	I-11
D004	H-13
D005	J-6
D006	I-1
D007	I-1
D008	D-15
D101	E-6
D102	F-3
D103	D-3
D104	F-3
D401	C-10
D402	C-9
D403	E-22
D404	C-10
D405	B-10
D406	B-10
D408	E-22
D409	E-25
D410	E-8
D411	F-8
D601	B-8
D648	C-14
D666	B-10
IC001	I-26
IC002	H-24
IC003	H-24
IC004	G-24
IC005	J-8
IC006	J-24
IC007	H-13
IC008	H-26
IC009	H-19
IC010	H-15
IC011	J-22
IC012	I-21
IC013	J-21
IC014	I-13
IC101	C-5
IC102	F-4
IC103	F-28
IC104	E-4
IC105	E-6
IC106	E-3
IC107	G-3
IC108	C-3
IC109	B-30
IC110	G-4
IC111	G-6
IC112	I-5
IC401	C-24
IC402	D-22
IC403	E-21
IC405	C-21
IC406	B-14
IC407	C-14
IC408	E-24
IC410	D-20
IC411	D-24
IC420	F-20
IC421	F-23
IC422	F-22
IC423	F-20
IC430	E-26
IC431	F-26
IC432	E-25
IC433	F-25
IC550	D-22
IC552	C-22
IC590	D-25
IC600	C-25
IC601	C-26
IC602	B-24
IC603	B-10
IC604	B-25
IC605	D-26
IC640	B-21
IC641	D-14
IC642	B-22
Q001	H-26
Q002	H-24
Q003	J-26
Q004	J-26
Q005	J-24
Q006	J-27
Q007	J-27
Q008	G-19
Q009	K-20
Q010	K-23
Q011	J-19
Q012	J-19
Q013	J-19
Q101	B-6
Q102	B-27
Q103	B-28
Q104	B-29
Q105	C-28
Q106	D-29
Q107	F-29
Q108	F-29
Q109	E-29
Q110	E-29
Q111	D-27
Q112	D-27
Q113	C-27
Q114	C-28
Q115	E-28
Q116	E-28
Q117	E-31
Q118	E-31
Q119	H-30
Q120	H-30
Q121	G-3
Q122	G-3
Q123	I-30
Q124	I-31
Q125	H-31
Q126	H-31
Q127	H-30
Q128	I-30
Q129	H-30
Q130	J-29
Q131	J-29
Q132	J-29
Q133	K-29
Q134	J-29
Q135	J-28
Q136	J-28
Q137	J-28
Q138	J-28
Q139	K-28
Q140	J-28
Q141	K-28
Q142	C-30
Q143	D-32
Q144	C-31
Q145	E-30
Q146	E-30
Q147	J-31
Q148	J-30
Q149	H-29
Q150	H-29
Q151	G-28
Q152	I-28
Q153	H-28
Q154	H-28
Q155	H-29
Q156	I-30
Q157	I-29
Q158	I-29
Q159	I-28
Q160	I-28
Q161	B-30
Q162	B-30
Q163	J-30
Q164	G-26
Q401	D-24
Q403	A-19
Q404	B-19
Q405	B-19
Q406	D-13
Q407	B-20
Q408	A-20
Q409	B-20
Q410	E-24
Q411	E-25
Q414	E-23
Q415	C-13
Q416	C-20
Q417	F-22
Q418	C-20
Q421	E-22
Q430	E-20
Q431	E-20
Q432	E-20
Q433	E-20
Q434	F-20
Q602	B-26
Q603	B-25
Q604	B-26
Q640	B-21
Q641	A-21
Q642	G-20
Q643	F-20
Q644	F-20
Q645	D-19
Q646	D-19
Q648	C-19
Q649	C-20
Q666	B-24
RV101	A-8
RV102	D-6
RV103	F-5
RV104	F-2
RV105	G-2
RV106	H-2
RV107	D-3
RV108	H-6
RV109	H-5
RV110	I-4
RV401	A-8
RV403	A-7
RV404	A-7
RV405	A-7
RV406	A-10
RV407	A-6
RV408	A-5
RV409	A-10
RV410	A-10
RV411	A-6
RV552	A-11

LP-3 BOARD (COMPONENT SIDE)
LP-3 BOARD (CONDUCTOR SIDE)
SERVO
VIDEO
SYSCON
MECHANISM BLOCK
CN601 (RED)
1 CD SPDL M
2 CD SPDL RTN
M904 CD SPDL MOTOR
CN403 (WHT)
1 SLED M
2 UNREG GND
M903 SLED MOTOR
CN602 (BLK)
1 TILT RTN
2 TILT M
M902 TILT MOTOR
CN003 (RED)
1 CD SPDL IN (–)
2 CD SPDL OUT (+)
M905 CD MOVE MOTOR
CN008 (YEL)
1 LD IN LIMIT
2 LD +5V
S901 LD IN LIMIT SWITCH
CN009 (WHT)
1 CD IN LIMIT
2 CD +5V
S902 CD IN LIMIT SWITCH
CN011 (YEL)
DOOR SW
D GND
S903 DOOR SWITCH
CN004 (WHT)
MISS CHUCK
D GND
S905 MISS CHUCK SWITCH
CN010
CHUCK
CD EJECT
D GND
LD EJECT
TRAY OPEN
S906 ROTARY ENCODER SWITCH
CN007 (BLK)
CD SPDL OUT
D GND
CD SPDL IN
S904 CD SPDL SWITCH
CNJ10(1-7)
-3 2/R
-2 1/L
AUDIO OUT 1
-1 VIDEO OUT
⑮
-5 2/R
-4 1/L
AUDIO OUT 2
-6 IN
-7 OUT
CONTROL S
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
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30
31
32

LP-3 (SERVO) SCHEMATIC DIAGRAM

– Ref. No. LP-3 BOARD: 1,000 series –

30
0.07Vp-p
12μsec
IC403 (41),(42) PB
31
0.1Vp-p
8.3μsec
IC403 (46),(47),(48) PB
LP-3 BOARD (SERVO)
OPTICA BLOCK (LD/CD)
PHOTO DIODE
TRACKING COIL
FOCUS COIL
(FLEXIBLE BOARD)
TO LP-3 BOARD (VIDEO)
(See page 40.)
IC401 CD DEFECT SWITCH
IC403 FOCUS/TRKG MATRIX AMP
IC411 LD/CD SWITCH
IC411 FOCUS SWITCH
IC411 TRKG GAIN SWITCH
IC402 LD/CD HOLD SWITCH
IC552 PHASE COMPENSATION
IC402 LD/CD SWITCH
Q406 Q415 TRKG M DRIVE
IC405 AMP
IC410 AMP
IC406 SLED M DRIVE
IC421 NOISE DET
IC420 E-F NOICAN
IC422 E-F NOICAN
IC405 FOCUS CONTROL
IC407 FOCUS M DRIVE
IC408 COMPARISION AMP
IC423 LD/CD SLED COMPENSATION
Q434 E-F NOICAN
Q403–Q405 SLED SWITCH
Q407–Q409 SLED SEND CIRCUIT
IC421 BRAKE TIMING DET
Q416,Q418 FOCUS SWITCH
IC641 TILT M/LOADING EJECT DRIVE
IC423 SWITCH
Q430–Q433 E-F UNBALANCE COMPENSATION
IC550 PHASE COMPENSATION
Q648,Q649 TILT M SWITCH
IC552 AMP
IC430 SWITCH
IC431 SWITCH
IC432 INVERTER
IC433 AMP
Q645,Q646 SWITCH
IC604 COMPARATOR
IC590 APC DRIVE
IC642 SLED OFF SWITCH
IC642 LOOP SWITCH
IC640 TILT PHASE COMPENSATION
IC640 WINDOW AMP
Q640,Q641 WINDOW SWITCH
Q642 EJECT SWITCH
Q643,Q644 LOADING SWITCH
M903 SLED MOTOR
TO DS-27 BOARD CN606
(See page 71.)
TO SERVO CN603 (2/2)
TO PS-188 BOARD CN102
(See page 88.)
(See page 57.)
M901 TILT MOTOR
IC600 CDV PHASE COMPENSATION
Q604 SPDL DOWN SWITCH
IC605 LOOP SWITCH 2
IC604 CD PHASE COMPENSATION
IC604 CD PHASE COMPENSATION
Q602,Q603 SPDL UP SWITCH
IC605 LOOP SWITCH
IC602 LOOP SWITCH
Q666 CDV SWITCH
IC604 CDV ERROR AMP
IC603 SPDL M DRIVE
IC601 GAIN SWITCH
TO DS-27 BOARD CN606
(See page 71.)
TO LP-3 BOARD (SYSTEM CONTROL)
(See page 57.)
TO PS-188 BOARD CN202
(See page 84.)
M902 CD SPINDLE MOTOR

Note:
- Signal path

  ⇨ : PB Y/CHROMA Signal

  ⇨ : PB AUDIO Signal

Spindle servo (speed and phase)	⋙
Tracking servo	≫
Slide servo	≻
Focus servo	≫

LP-3 (SYSTEM CONTROL), FG-10 (CD DETECTION), FG-11 (SL DETECTION), FG-12 (LD DETECTION), AND DC-12 (CD DISC SENSOR) SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS

– Ref. No. LP-3 BOARD: 1,000 series, FG-10, FG-11, FG-12 and DC-12 BOARDS: 2,000 series –

LP-3 BOARD(SYSTEM CONTROL)
DC-12 BOARD
FG-11 BOARD
FG-10 BOARD
FG-12 BOARD
TO LP-3 BOARD CN1001 (VIDEO) (See page 40.)
TO PS-188 BOARD CN103 (See page 88.)
TO LP-3 BOARD (SERVO) (See page 53.)
TO FR-142 BOARD W001 (See page 81.)
TO DS-27 BOARD CN805 (See page 73.)
TO DS-27 BOARD CN804 (See page 73.)
IC001 CHARACTOR GENERATOR
IC002 COMPARATOR
IC003 MONO MULTI
IC004 COMPARATOR
IC005 SYNC GENERATOR
IC006 SYSTEM CONTROL
IC007 INITIAL RESET
IC008 SERIAL IN PARALLEL OUT
IC009 COMPARATOR
IC010 CD SPDL DRIVE
IC011 I/O PORT
IC012 MONO MULTI
IC013 LATCH
IC014 ROM
Q001 V MUTE SWITCH
Q002 AMP
Q003,Q004 INVERTER
Q005 SWITCH
Q006,Q007 INVERTER
Q008 LED DRIVE
Q009 INVERTER
Q010 INVERTER
Q011 LD/CD SWITCH
Q012 LD +5V SWITCH
Q013 CD +5V SWITCH
FL001 NOISE FILTER
FL002 NOISE FILTER
S903 DOOR SWITCH
M905 CD MOVE MOTOR
S905 MISS CHUCK SWITCH
S906 ROTALY ENCODER SWITCH
S904 CD SPDL SWITCH
S901 LD IN LIMIT SWITCH
S902 CD IN LIMIT SWITCH
CONTROLS
IC001 ⑤ PB
IC001 ③ PB
IC005 ⑨ PB
Q003 © PB
Q004 © PB
IC006 ① PB
IC006 ② PB
IC006 ③ PB
IC006 ④ PB
IC006 ⑥ PB
IC006 ⑦ PB
IC006 ⑧ PB
IC006 ⑩ PB
6.33MHz
17.73MHz
14.31MHz

Note:
- Signal path

⇨ : PB Y/CHROMA Signal

Spindle servo (speed and phase)	⪢
Slide servo	〉

LP-3 (SYSTEM CONTROL)
PRINTED WIRING BOARD

– Ref. No. LP-3 BOARD: 1,000 series –

Note:
- ⊗ : Through hole.
- ▨ : Pattern of the rear side.

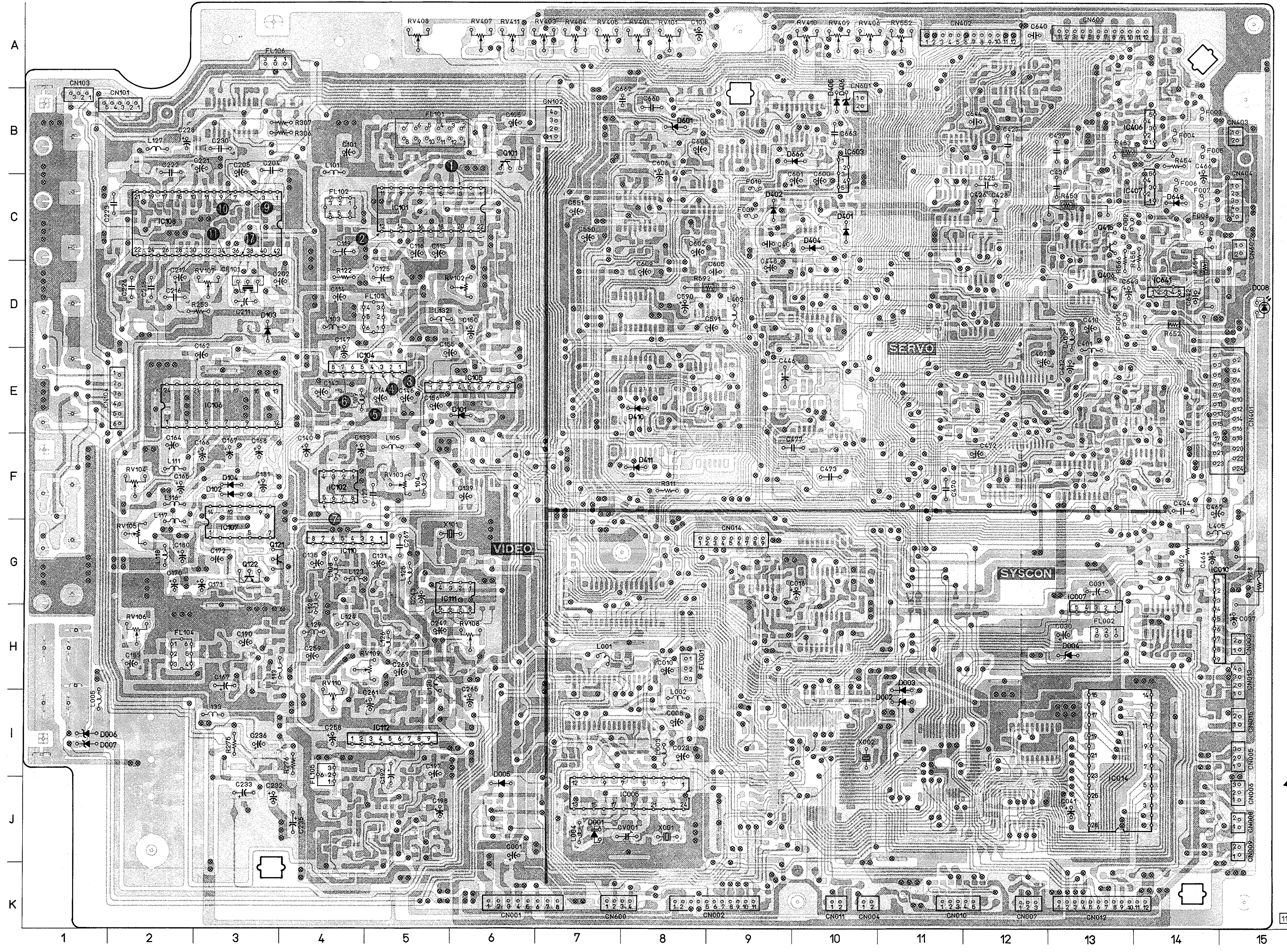
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

LP-3 BOARD

CN001	K-6	IC001	I-26	Q001	H-26	Q158	I-29
CN002	K-9	IC002	H-24	Q002	H-24	Q159	I-28
CN003	H-15	IC003	H-24	Q003	J-26	Q160	I-28
CN004	K-10	IC004	G-24	Q004	J-26	Q161	B-30
CN005	I-15	IC005	J-8	Q005	J-24	Q162	B-30
CN006	J-15	IC006	J-24	Q006	J-27	Q163	J-30
CN007	K-12	IC007	H-13	Q007	J-27	Q164	G-26
CN008	J-15	IC008	H-26	Q008	G-19	Q401	D-24
CN009	J-15	IC009	H-19	Q009	K-20	Q403	A-19
CN010	K-11	IC010	H-15	Q010	K-23	Q404	B-19
CN011	K-10	IC011	J-22	Q011	J-19	Q405	B-19
CN012	K-13	IC012	I-21	Q012	J-19	Q406	D-13
CN013	H-15	IC013	J-21	Q013	J-19	Q407	B-20
CN014	G-9	IC014	I-13	Q101	B-6	Q408	A-20
CN015	I-15	IC101	C-5	Q102	B-27	Q409	B-20
CN101	B-2	IC102	F-4	Q103	B-28	Q410	E-24
CN102	B-7	IC103	F-28	Q104	B-29	Q411	E-25
CN103	B-1	IC104	E-4	Q105	C-28	Q414	E-23
CN104	E-2	IC105	E-6	Q106	D-29	Q415	C-13
CN401	E-15	IC106	E-3	Q107	F-29	Q416	C-20
CN402	A-12	IC107	G-3	Q108	F-29	Q417	F-22
CN403	B-15	IC108	C-3	Q109	E-29	Q418	C-20
CN404	C-15	IC109	B-30	Q110	E-29	Q421	E-22
CN600	K-7	IC110	G-4	Q111	D-27	Q430	E-20
CN601	B-10	IC111	G-6	Q112	D-27	Q431	E-20
CN602	C-15	IC112	I-5	Q113	C-27	Q432	E-20
CN603	A-13	IC401	C-24	Q114	C-28	Q433	E-20
		IC402	D-22	Q115	E-28	Q434	F-20
CV001	J-8	IC403	E-21	Q116	E-28	Q602	B-26
		IC405	C-21	Q117	E-31	Q603	B-25
D001	J-7	IC406	B-14	Q118	E-31	Q604	B-26
D002	I-11	IC407	C-14	Q119	H-30	Q640	B-21
D003	I-11	IC408	E-24	Q120	H-30	Q641	A-21
D004	H-13	IC410	D-20	Q121	G-3	Q642	G-20
D005	J-6	IC411	D-24	Q122	G-3	Q643	F-20
D006	I-1	IC420	F-20	Q123	I-30	Q644	F-20
D007	I-1	IC421	F-23	Q124	I-31	Q645	D-19
D008	D-15	IC422	F-22	Q125	H-31	Q646	D-19
D101	E-6	IC423	F-20	Q126	H-31	Q648	C-19
D102	F-3	IC430	E-26	Q127	H-30	Q649	C-20
D103	D-3	IC431	F-26	Q128	I-30	Q666	B-24
D104	F-3	IC432	E-25	Q129	H-30		
D401	C-10	IC433	F-25	Q130	J-29	RV101	A-8
D402	C-9	IC550	D-22	Q131	J-29	RV102	D-6
D403	E-22	IC552	C-22	Q132	J-29	RV103	F-5
D404	C-10	IC590	D-25	Q133	K-29	RV104	F-2
D405	B-10	IC600	C-25	Q134	J-29	RV105	G-2
D406	B-10	IC601	C-26	Q135	J-28	RV106	H-2
D408	E-22	IC602	B-24	Q136	J-28	RV107	D-3
D409	E-25	IC603	B-10	Q137	J-28	RV108	H-6
D410	E-8	IC604	B-25	Q138	J-28	RV109	H-5
D411	F-8	IC605	D-26	Q139	K-28	RV110	I-4
D601	B-8	IC640	B-21	Q140	J-28	RV401	A-8
D648	C-14	IC641	D-14	Q141	K-28	RV403	A-7
D666	B-10	IC642	B-22	Q142	C-30	RV404	A-7
				Q143	D-32	RV405	A-7
				Q144	C-31	RV406	A-10
				Q145	E-30	RV407	A-6
				Q146	E-30	RV408	A-5
				Q147	J-31	RV409	A-10
				Q148	J-30	RV410	A-10
				Q149	H-29	RV411	A-6
				Q150	H-29	RV552	A-11
				Q151	G-28		
				Q152	I-28		
				Q153	H-28		
				Q154	H-28		
				Q155	H-29		
				Q156	I-30		
				Q157	I-29		

LP-3 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
J
K
1
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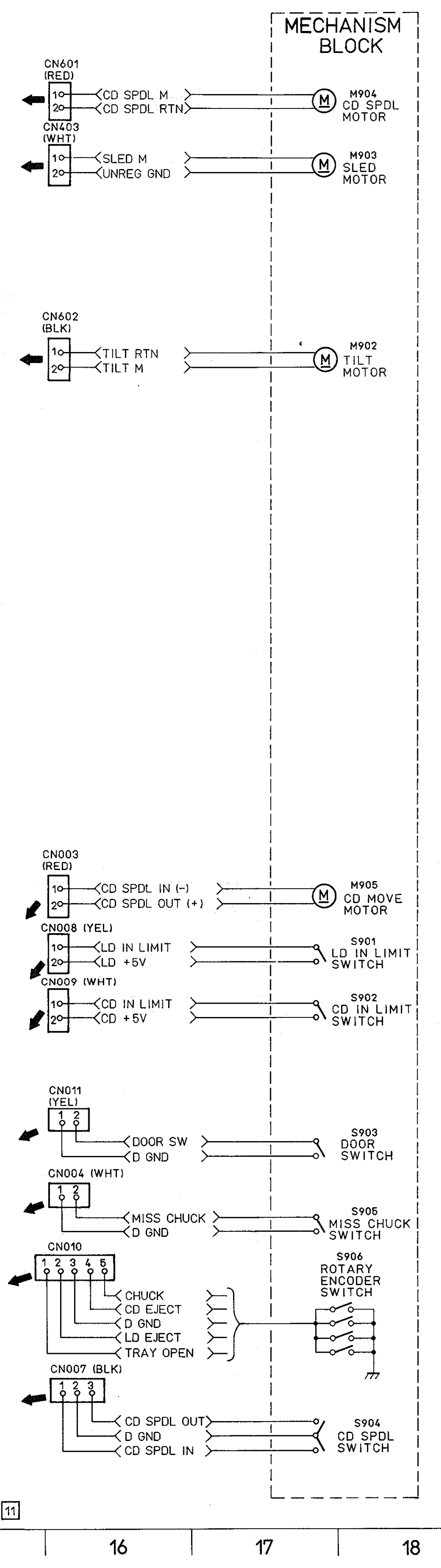
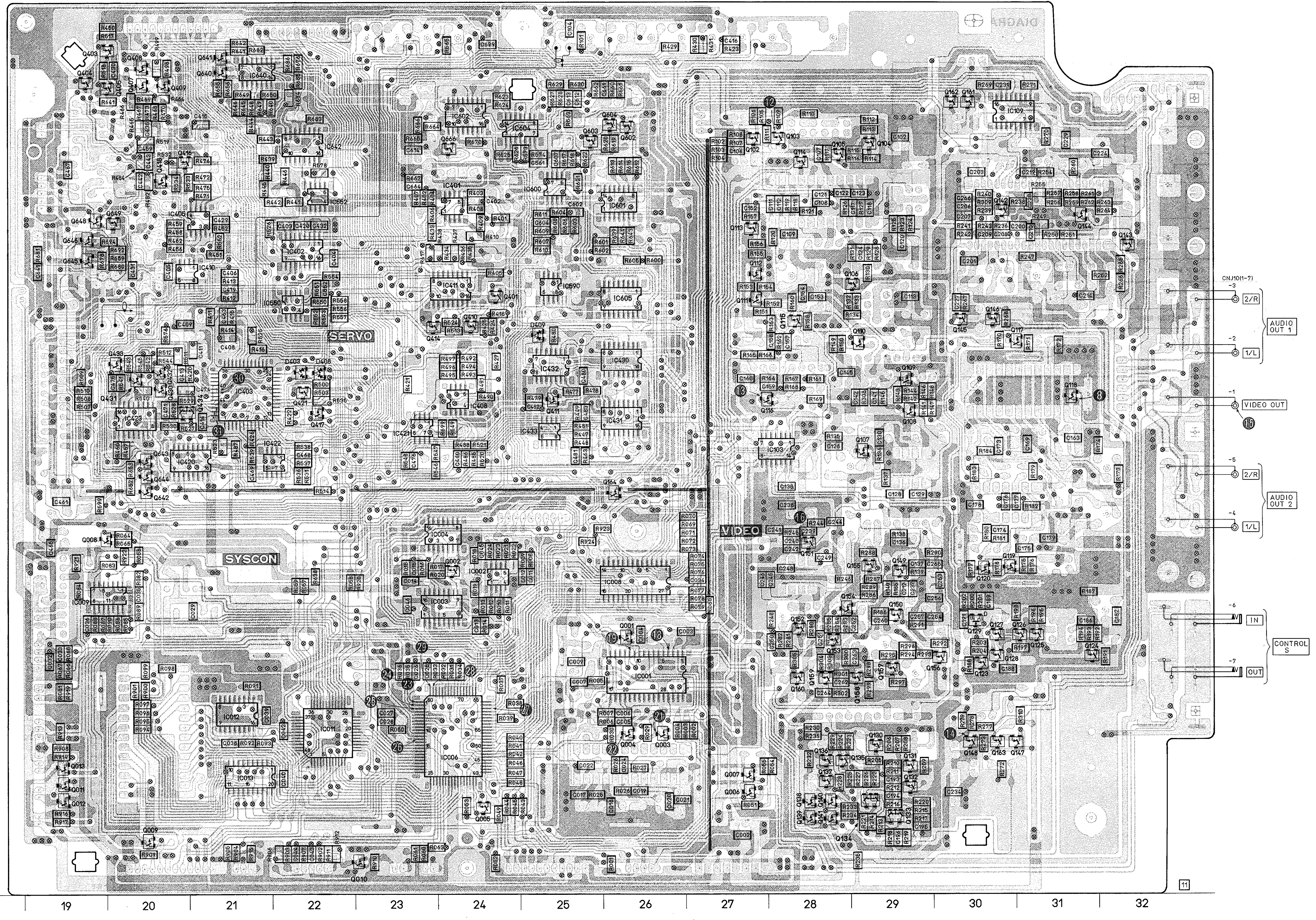
14
15
SERVO
VIDEO
SYSCON

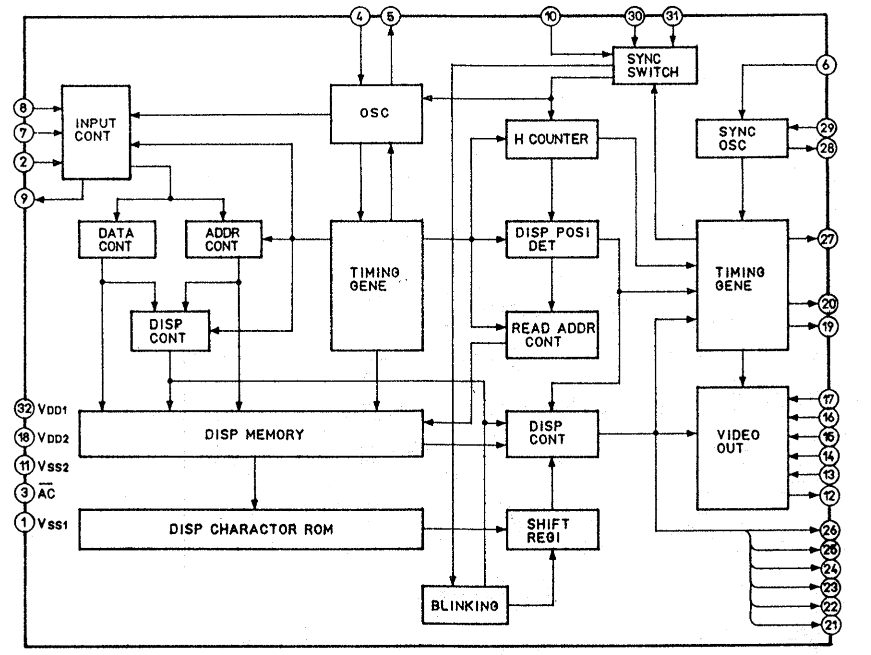

MECHANISM BLOCK
CN601 (RED)
CD SPDL M
CD SPDL RTN
M904 CD SPDL MOTOR
CN403 (WHT)
SLED M
UNREG GND
M903 SLED MOTOR
CN602 (BLK)
TILT RTN
TILT M
M902 TILT MOTOR
CN003 (RED)
CD SPDL IN (−)
CD SPDL OUT (+)
M905 CD MOVE MOTOR
CN008 (YEL)
LD IN LIMIT
LD +5V
S901 LD IN LIMIT SWITCH
CN009 (WHT)
CD IN LIMIT
CD +5V
S902 CD IN LIMIT SWITCH
CN011 (YEL)
DOOR SW
D GND
S903 DOOR SWITCH
CN004 (WHT)
MISS CHUCK
D GND
S905 MISS CHUCK SWITCH
CN010
CHUCK
CD EJECT
D GND
LD EJECT
TRAY OPEN
S906 ROTARY ENCODER SWITCH
CN007 (BLK)
CD SPDL OUT
D GND
CD SPDL IN
S904 CD SPDL SWITCH
16
17
18

LP-3 BOARD (CONDUCTOR SIDE)


19
20
21
22
23
24
25
26
27
28
29
30
31
32
SERVO
VIDEO
SYSCON
AUDIO OUT 1
VIDEO OUT
AUDIO OUT 2
IN
OUT
CONTROL S

• SYSTEM CONTROL BLOCK IC BLOCK DIAGRAM

IC001 (LP-3 BOARD) M50455-080FP


INPUT CONT
OSC
SYNC SWITCH
SYNC OSC
H COUNTER
DATA CONT
ADDR CONT
TIMING GENE
DISP POSI DET
DISP CONT
READ ADDR CONT
DISP MEMORY
VIDEO OUT
DISP CHARACTOR ROM
SHIFT REGI
BLINKING
④ ⑤ ⑩ ㉚ ㉛ ⑥ ㉙ ㉘ ㉗ ⑳ ⑲ ⑰ ⑯ ⑮ ⑭ ⑬ ⑫ ㉖ ㉕ ㉔ ㉓ ㉒ ㉑
⑧ ⑦ ② ⑨
㉜ VDD1
⑱ VDD2
⑪ VSS2
③ AC
① VSS1

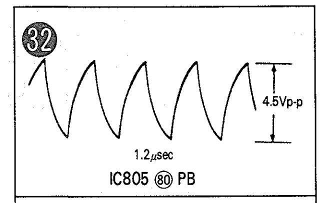
DS-27 (DIGITAL AUDIO) AND HP-44 (HEADPHONE AMP) PRINTED WIRING BOARDS

– Ref. No. DS-27 and HP-44 BOARDS: 3,000 series –

Note:
- ⊗ : Through hole.
- ▨ : Pattern of the rear side.

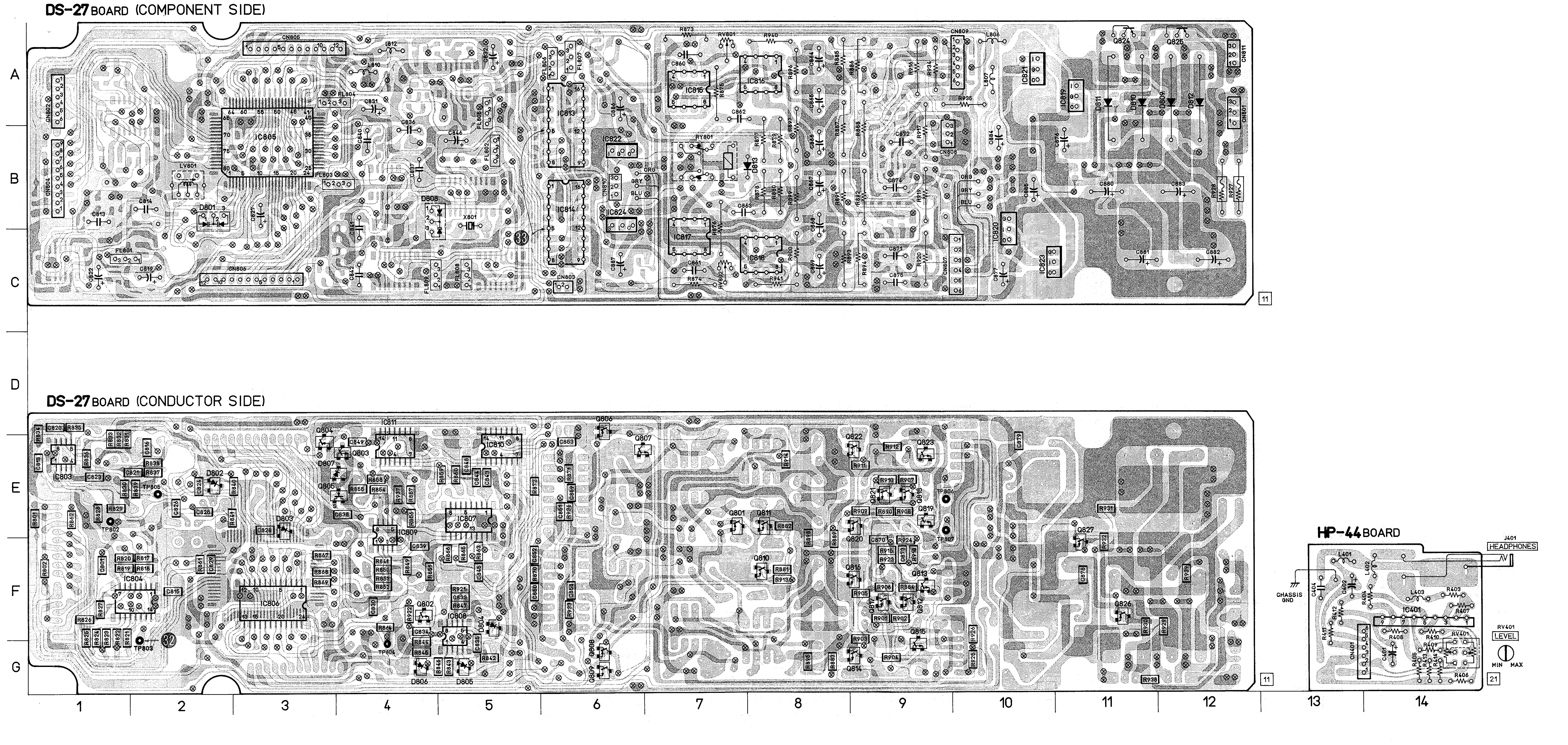
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.



DS-27 BOARD

CN401	G-14
CN801	A-12
CN802	A-1
CN803	C-6
CN804	B-1
CN805	A-3
CN806	C-3
CN807	C-10
CN808	B-10
CN809	A-10
CN810	B-6
CN811	A-12
D801	B-2
D802	E-2
D803	E-3
D804	F-5
D805	G-5
D806	G-4
D807	E-4
D808	B-5
D809	A-12
D810	A-11
D811	A-11
D812	A-12
D813	B-8
IC401	F-14
IC803	E-1
IC804	F-2
IC805	B-3
IC806	F-3
IC807	E-5
IC808	F-5
IC809	E-4
IC810	E-5
IC811	E-4
IC813	A-6
IC814	B-6
IC815	A-7
IC816	A-8
IC817	C-7
IC818	C-8
IC819	A-11
IC820	C-10
IC821	A-10
IC822	B-6
IC823	C-11
IC824	B-6
LV801	B-2
Q801	E-7
Q802	F-4
Q803	E-4
Q804	E-3
Q805	E-4
Q806	D-6
Q807	E-7
Q808	G-6
Q809	G-6
Q810	F-8
Q811	E-8
Q812	F-9
Q813	F-9
Q814	G-9
Q815	G-9
Q816	F-9
Q817	F-9
Q818	E-9
Q819	E-9
Q820	E-9
Q821	E-9
Q822	E-9
Q823	E-9
Q824	A-11
Q825	A-12
Q826	F-11
Q827	F-11
RV401	G-14
RV801	A-7
RV802	C-7


DS-27 BOARD (COMPONENT SIDE)
DS-27 BOARD (CONDUCTOR SIDE)
HP-44 BOARD
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11
12
13
14
IC805
LV801
11
J401
HEADPHONES
CHASSIS GND
IC401
RV401
LEVEL
MIN
MAX
21

DS-27 (DIGITAL AUDIO) AND HP-44 (HEADPHONE AMP) SCHEMATIC DIAGRAM

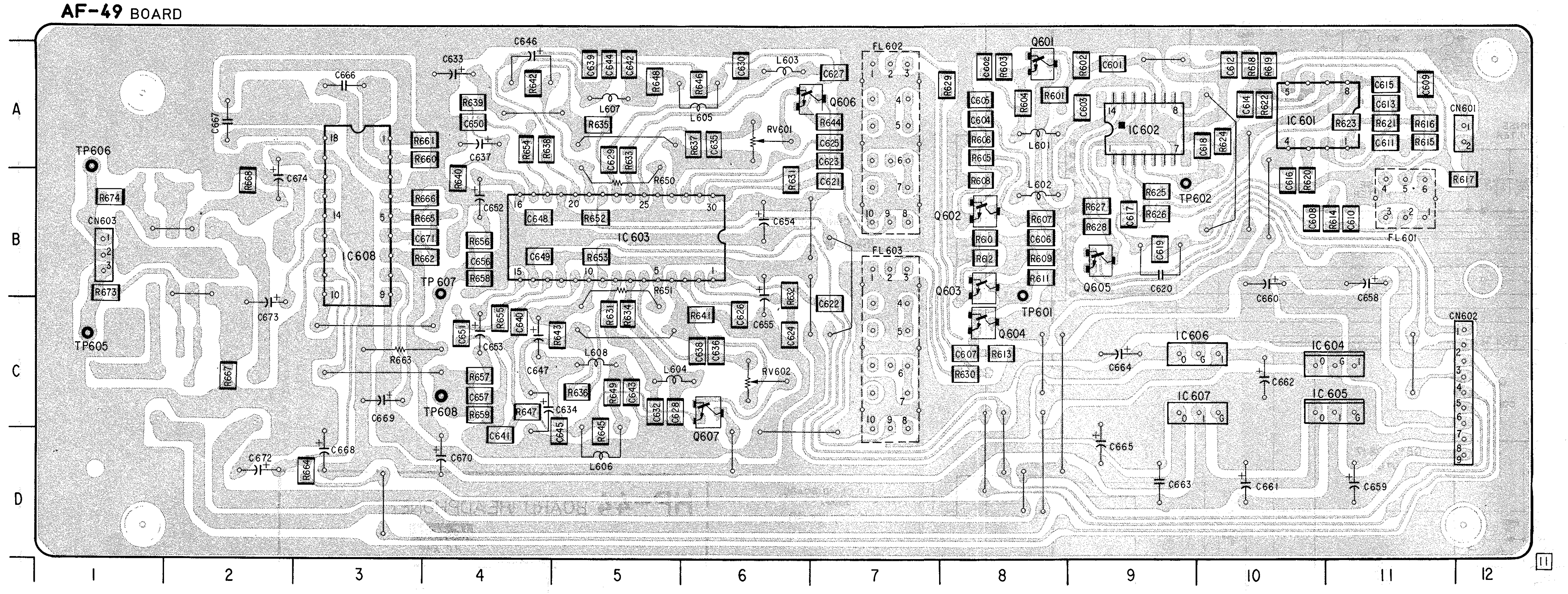
– Ref. No. DS-27 and HP-44 BOARDS: 3,000 series –

Note:
- Signal path
  ⇨ : PB AUDIO Signal

DS-27 BOARD (DIGITAL AUDIO)
CN802 6P 2.0 EL RED
EFM IN
EFM GND
CX
LD/CD
AMUTE 1
AMUTE 2
TO AF-49 BOARD CN602 (1-6PIN)
(See page 76.)
CN811 3P 2.0 EL YEL
+17V
GND
-17V
TO AF-49 BOARD CN602 (7-9PIN)
(See page 76.)
CN803 2P 2.0 EL WHT
MOD AUDIO
MOD AUDIO GND
TO LP-3 BOARD (SYSCON) CN102 (1-2PIN)
(See page 40.)
CN806 12P 2.0 EL RED
JP -
JP +
THLD
TGL
TOFF
TES
HFL
FZD
FST
FOCS
CLV -
CLV +
TO LP-3 BOARD (SERVO) CN603
(See pages 53, 55)
CN801 3P 2.5 EL WHT
AC 17V
GND
AC 17V
TO POWER TRANSFORMER
(See page 88.)
CN810 3P 2.0 EL RED
AFM R
AFM GND
AFM L
TO AF-49 BOARD CN603
(See page 78.)
IC803 (2/2) VCO
IC803 (1/2) DC FEED BACK
IC804 INVERTER
IC805 D.S PROCESSOR
IC806 16K S RAM
IC807 DIGITAL FILTER
IC808 AMP
IC808 L/R MIX AMP
IC809 CLV DET
Q802 ATT
Q805 SWITCH
Q803,Q804 LD/CD SWITCH
IC819 +12V REG
IC820 -12V REG
IC821 +12V REG
IC822 +5V REG
IC823 -12V REG
IC824 -5V REG
Q826 +REG OUT
Q827 POWER SWITCH
Q826 REG CONTROL
Q824 -REG OUT
W801 CHASSIS GND
IC810 DIGITAL L/R SWITCH
IC811 DIGITAL L/R SWITCH
IC813 D/A CONVERTOR
IC814 D/A CONVERTOR
NOISE FILTER
IC815 LPF
IC817 LPF
Q801 RY DRIVE
Q806,Q807 LINE MUTE SWITCH
Q808,Q809 DE EMPH CONTROL SWITCH
Q810 DE EMPH
Q811 DE EMPH
RY801 A/D SWITCH
Q812–Q817 MUTING
Q818–Q823 MUTING
IC815 BUFFER
IC816 BUFFER
IC817 BUFFER
IC818 BUFFER
FREE RUN FREQ
LINE OUT LEVEL
CN804 9P 2.0 EL BLK
TO LP-3 BOARD (SYSCON) CN014
(See page 60.)
CN805 12P 2.0 EL WHT
TO LP-3 BOARD (SYSCON) CN001
(See page 60.)
CN808 3P 2.0 EL WHT
TO CL-10 BOARD CN002
(See page 40.)
CN809 6P 2.0 EL WHT
CN807 6P 2.5 EL WHT
TO LP-3 BOARD (SERVO) CN104
(See page 40.)
HP-44 BOARD (HEADPHONE)
IC401 H.P AMP
IC401 NJM4560S
CN401 6P 2.0 EL WHT
RV401 LEVEL
J401 HEADPHONES
IC807 CXD1316DM
TIMING CONTROL
COEFF ROM
ACCUMURATOR
INPUT INTERFACE
SHIFT REGISTER
SHIFT REGISTER
OVER FLOW LIMITTER
OUTPUT INTERFACE
VDD
Vss

AF-49 (ANALOG AUDIO SIGNAL) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No. AF-49 BOARD: 3,000 series –


AF-49 BOARD
TP606
CN603
TP605
TP607
TP608
IC608
IC603
IC602
IC601
IC604
IC605
IC606
IC607
FL602
FL603
FL601
RV601
RV602
Q601
Q602
Q603
Q604
Q605
Q606
Q607
TP601
TP602
CN601
CN602
A
B
C
D
1
2
3
4
5
6
7
8
9
10
11
12

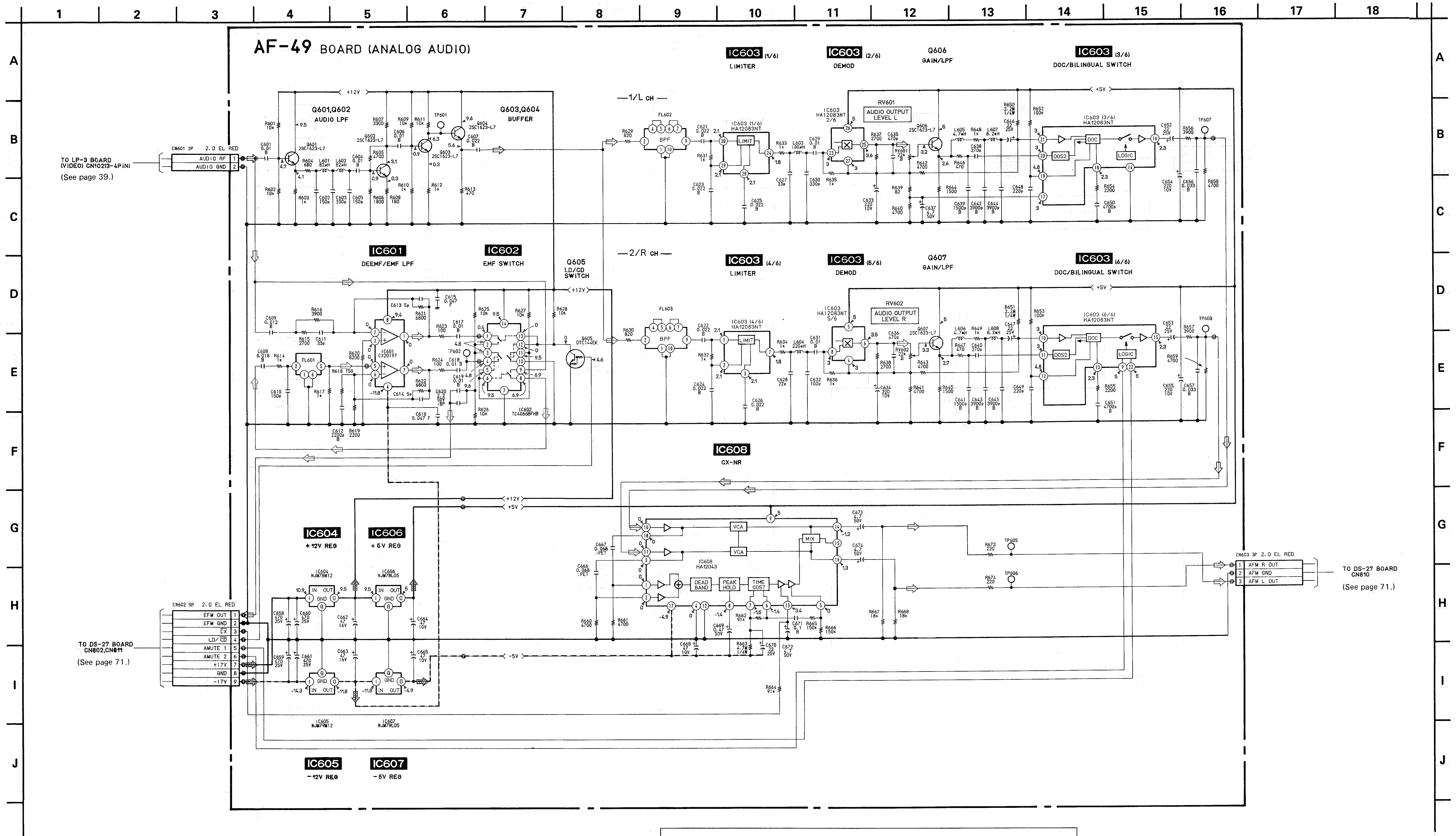
AF-49 BOARD

CN601	A-12
CN602	C-12
CN603	B-1
IC601	A-10
IC602	A-9
IC603	B-5
IC604	C-11
IC605	C-11
IC606	C-9
IC607	C-9
IC608	B-3
Q601	A-8
Q602	B-8
Q603	B-8
Q604	C-8
Q605	B-4
Q606	A-6
Q607	C-6

Note:

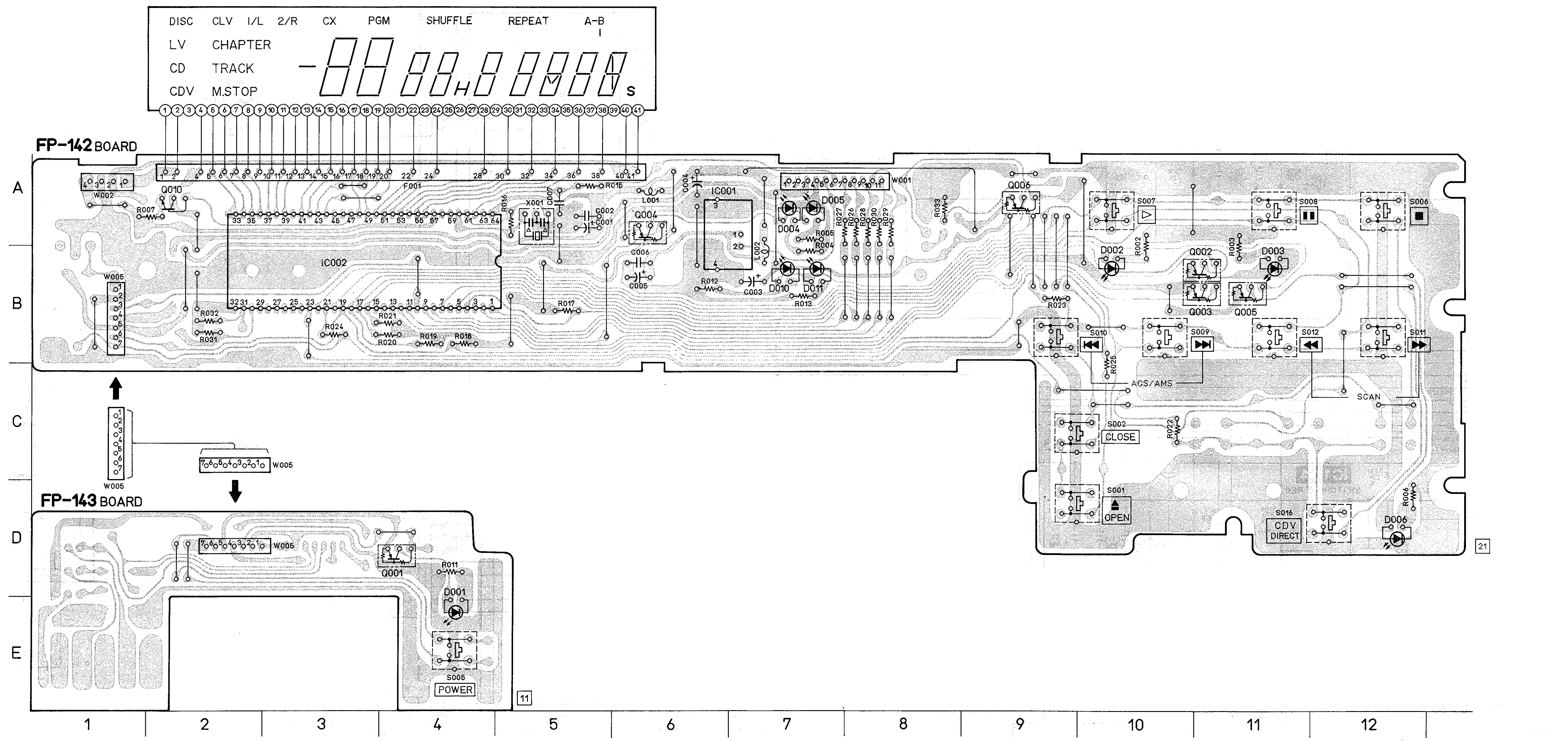
● Signal path

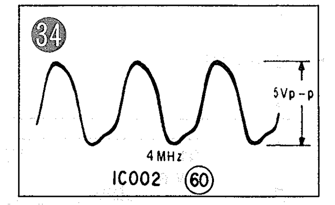
⇨ : PB AUDIO Signal


AF-49 BOARD (ANALOG AUDIO)
IC603 (1/6) LIMITER
IC603 (2/6) DEMOD
Q606 GAIN/LPF
IC603 (3/6) DOC/BILINGUAL SWITCH
Q601,Q602 AUDIO LPF
Q603,Q604 BUFFER
—1/L CH—
—2/R CH—
AUDIO OUTPUT LEVEL L
AUDIO OUTPUT LEVEL R
TO LP-3 BOARD (VIDEO) CN10213-4PIN)
(See page 39.)
AUDIO RF
AUDIO GND
IC601 DEEMF/EMF LPF
IC602 EMF SWITCH
Q605 LD/CD SWITCH
IC603 (4/6) LIMITER
IC603 (5/6) DEMOD
Q607 GAIN/LPF
IC603 (6/6) DOC/BILINGUAL SWITCH
IC608 CX-NR
IC604 +12V REG
IC606 +5V REG
IC605 -12V REG
IC607 -5V REG
TO DS-27 BOARD CN802,CN811
(See page 71.)
EFM OUT
EFM GND
CX
LD/CD
AMUTE 1
AMUTE 2
+17V
GND
-17V
TO DS-27 BOARD CN810
(See page 71.)
AFM R OUT
AFM GND
AFM L OUT
VCA
MIX
DEAD BAND
PEAK HOLD
TIME CONS
BPF
LIMIT
DOC
LOGIC
+12V
+5V
-5V
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J

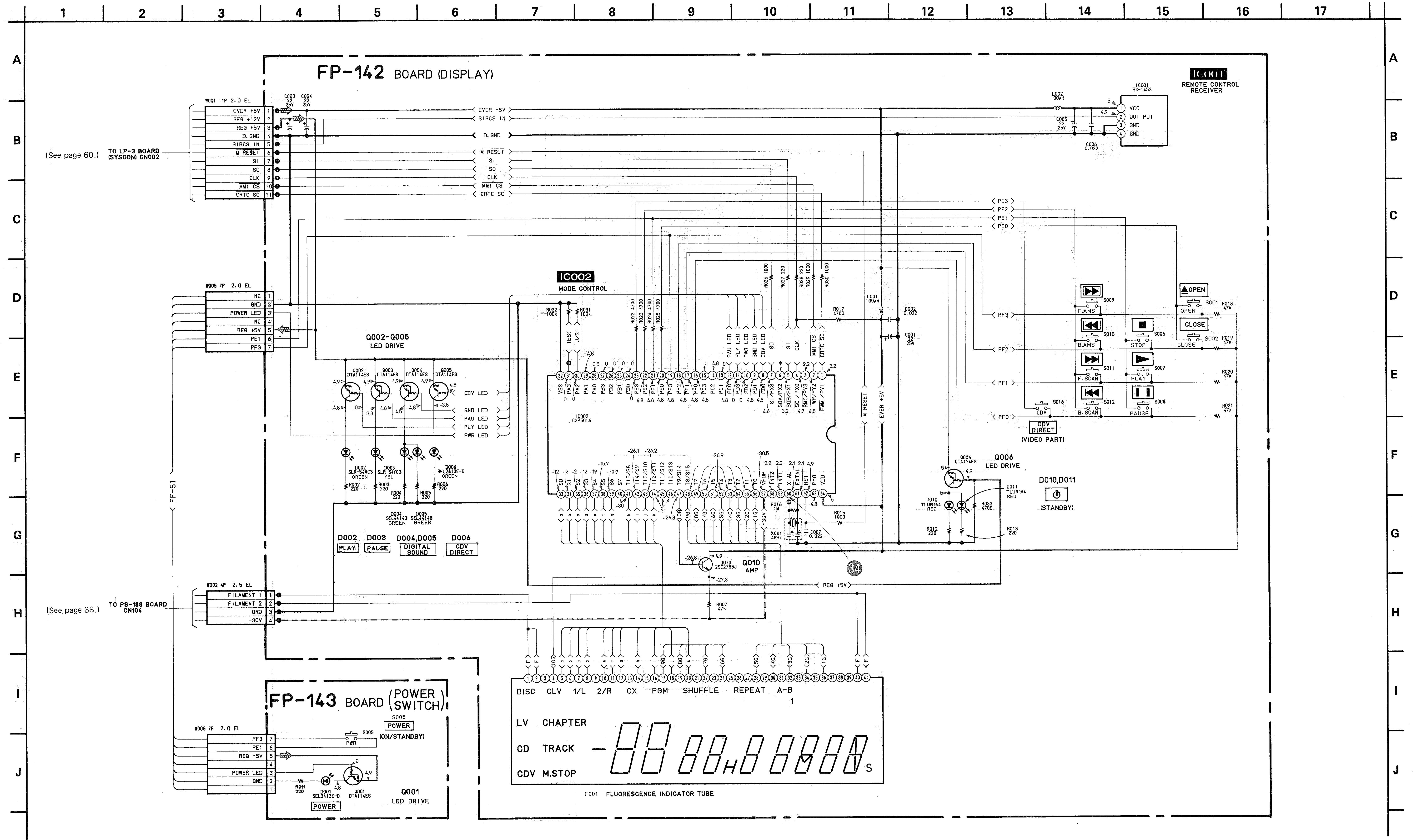
FP-142 (MODE CONTROL, FUNCTION SWITCH, INDICATOR) AND FP-143 (POWER SWITCH) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

– Ref. No. FP-142 and FP-143 BOARDS: 4,000 series –


DISC CLV 1/L 2/R CX PGM SHUFFLE REPEAT A-B
LV CHAPTER
CD TRACK
CDV M.STOP
FP-142 BOARD
FP-143 BOARD
IC001
IC002
W001
W002
W005
D001
D002
D003
D004
D005
D006
Q001
Q002
Q003
Q004
Q005
Q006
Q010
S001 OPEN
S002 CLOSE
S005 POWER
S016 CDV DIRECT
SCAN
AGS/AMS
A
B
C
D
E
1
2
3
4
5
6
7
8
9
10
11
12

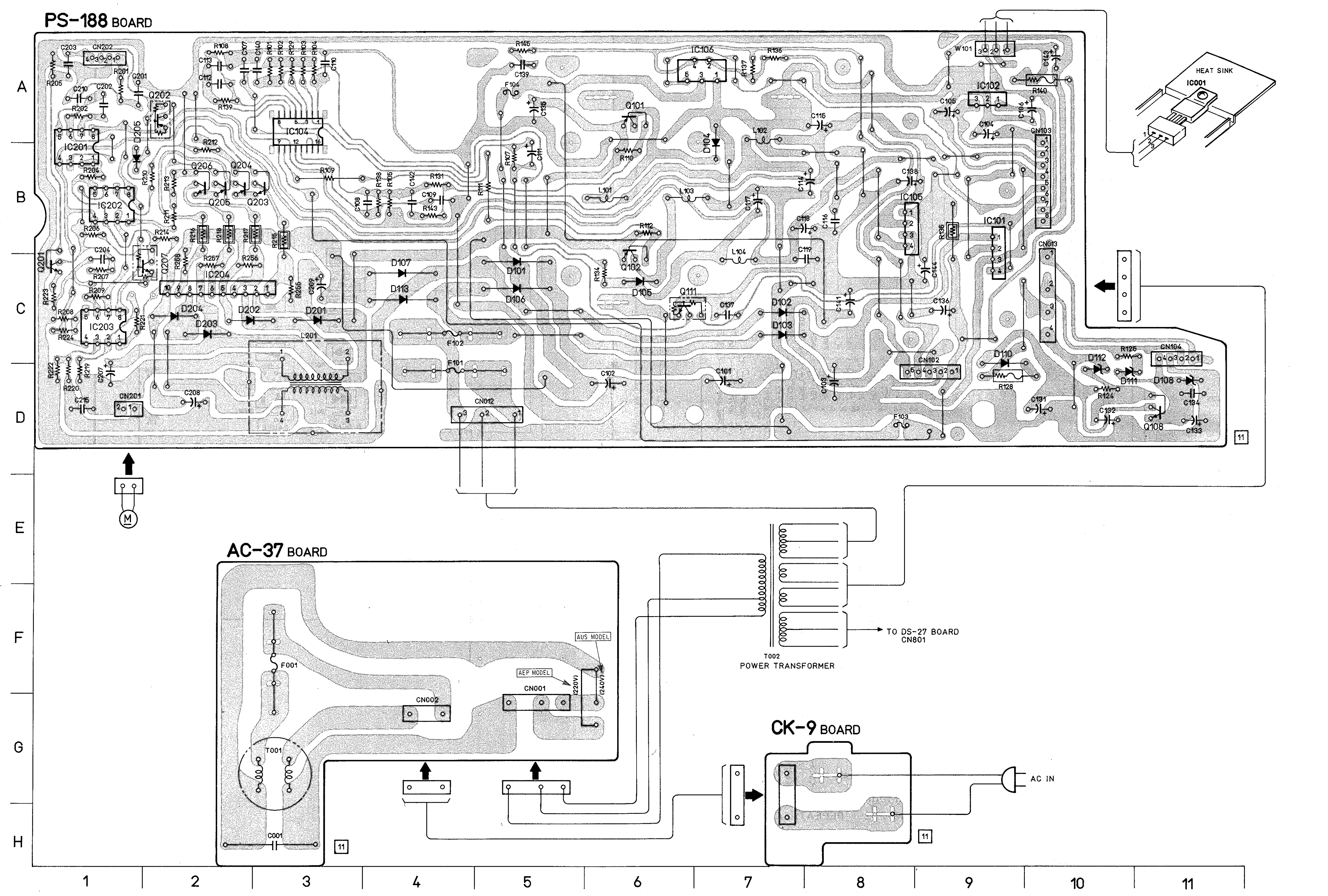


FP-142, FP-143 BOARD	
D001	E-4
D002	B-10
D003	B-11
D004	A-7
D005	A-7
D006	D-12
D010	B-7
D011	B-7
D012	A-5
D013	A-1
IC001	A-6
IC002	B-3
Q001	D-4
Q002	B-11
Q003	B-11
Q004	A-6
Q005	B-11
Q006	A-9
Q010	A-2
W001	A-7
W002	A-1
W005	G-1


FP-142 BOARD (DISPLAY)
(See page 60.)
TO LP-3 BOARD (SYSCON) CN002
EVER +5V
REG +12V
REG +5V
D. GND
SIRCS IN
W RESET
SI
SO
CLK
MM CS
CRTC SC
IC001 REMOTE CONTROL RECEIVER
IC002 MODE CONTROL
Q002-Q005 LED DRIVE
CDV LED
SND LED
PAU LED
PLY LED
PWR LED
D002 PLAY
D003 PAUSE
D004,D005 DIGITAL SOUND
D006 CDV DIRECT
Q006 LED DRIVE
D010,D011 (STANDBY)
Q010 AMP
FP-51
(See page 88.)
TO PS-188 BOARD CN104
FILAMENT 1
FILAMENT 2
GND
-30V
REG +5V
F.AMS
B.AMS
F.SCAN
B.SCAN
STOP
PLAY
PAUSE
OPEN
CLOSE
CDV DIRECT (VIDEO PART)
PF0
PF1
PF2
PF3
PE0
PE1
PE2
PE3
FP-143 BOARD (POWER SWITCH)
S005 POWER (ON/STANDBY)
Q001 LED DRIVE
POWER LED
DISC CLV 1/L 2/R CX PGM SHUFFLE REPEAT A-B
LV CHAPTER
CD TRACK
CDV M.STOP
F001 FLUORESCENCE INDICATOR TUBE
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

PS-188 (POWER SUPPLY, SPINDLE SERVO), AC-37 (LINE FILTER), AND CK-9 (TRANSLATION) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

– Ref. No. PS-188, AC-37 and CK-9 BOARDS: 5,000 series –


PS-188 BOARD
AC-37 BOARD
CK-9 BOARD
HEAT SINK
IC001
POWER TRANSFORMER
T001
TO DS-27 BOARD CN801
AC IN
AUS MODEL
AEP MODEL
CN001
CN002
F001
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11

PS-188 BOARD

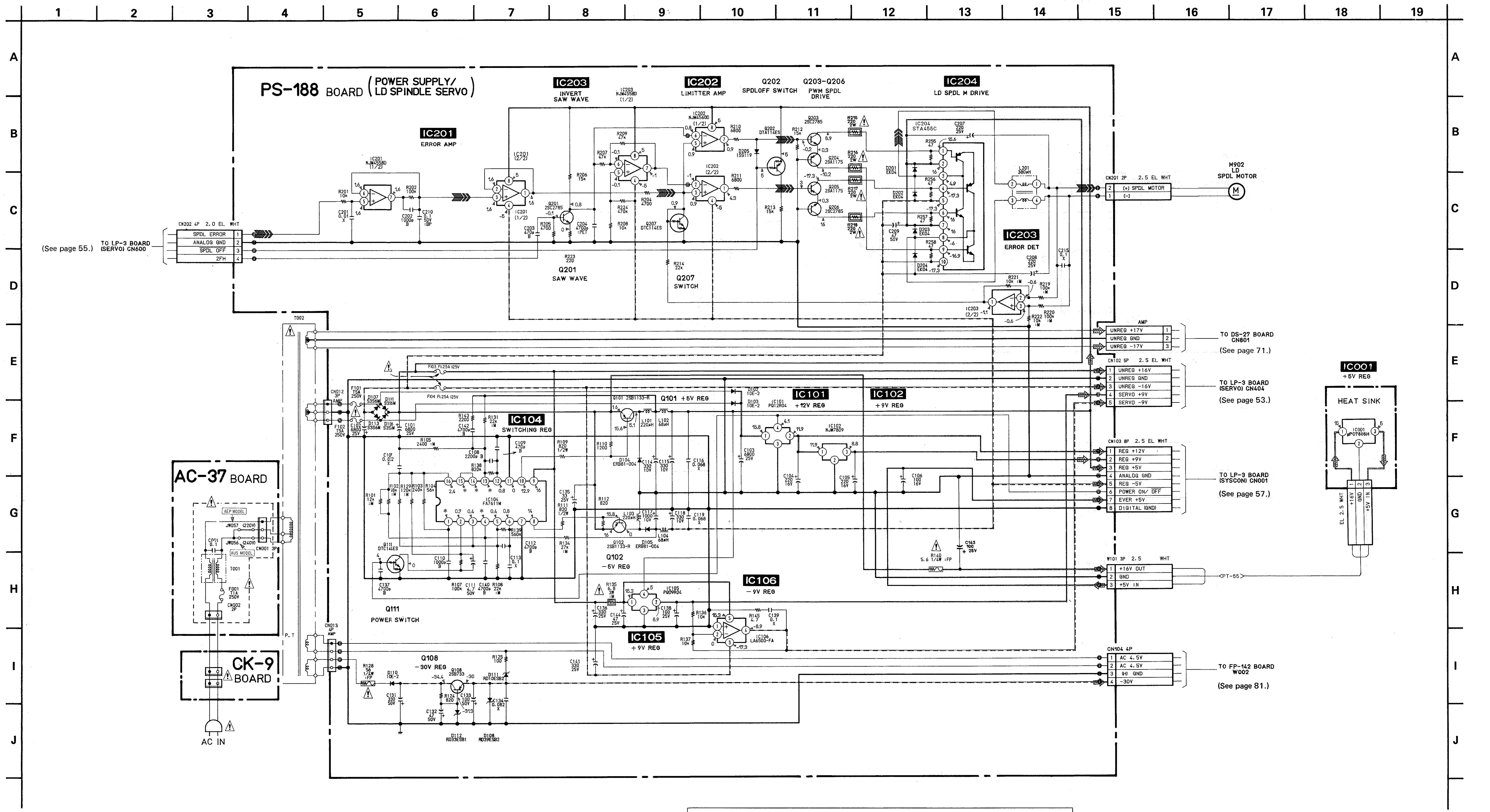
CN012	D-5
CN013	C-10
CN102	D-9
CN103	B-10
CN104	C-11
CN201	D-1
CN202	A-1
D101	C-5
D102	C-7
D103	C-7
D104	A-7
D105	C-6
D106	C-5
D107	C-4
D108	D-11
D110	C-9
D111	D-10
D112	D-10
D113	C-4
D201	C-3
D202	C-2
D203	C-2
D204	C-2
D205	B-1
IC101	B-9
IC102	A-9
IC104	A-3
IC105	B-5
IC106	A-7
IC201	B-1
IC202	B-1
IC203	B-1
IC204	C-2
Q101	A-6
Q102	C-6
Q108	D-11
Q111	C-6
Q201	C-1
Q202	A-2
Q203	B-3
Q204	B-2
Q205	B-2
Q206	B-2
Q207	C-2
W101	A-9

AC-37 BOARD

CN001	G-5
CN002	G-4

Note:
- Signal path

Spindle servo (speed and phase)	»»


PS-188 BOARD (POWER SUPPLY/ LD SPINDLE SERVO)
IC201 ERROR AMP
IC203 INVERT SAW WAVE
IC202 LIMITTER AMP
Q202 SPDL OFF SWITCH
Q203-Q206 PWM SPDL DRIVE
IC204 LD SPDL M DRIVE
IC203 ERROR DET
Q201 SAW WAVE
Q207 SWITCH
M902 LD SPDL MOTOR
(See page 55.) TO LP-3 BOARD (SERVO) CN600
SPDL ERROR
ANALOG GND
SPDL OFF
2FH
TO DS-27 BOARD CN801 (See page 71.)
UNREG +17V
UNREG GND
UNREG -17V
TO LP-3 BOARD (SERVO) CN404 (See page 53.)
TO LP-3 BOARD (SYSCON) CN001 (See page 57.)
TO FP-142 BOARD W002 (See page 81.)
IC104 SWITCHING REG
Q101 +5V REG
IC101 +12V REG
IC102 +9V REG
Q102 -5V REG
Q111 POWER SWITCH
IC106 -9V REG
IC105 +9V REG
Q108 -30V REG
IC001 +5V REG
HEAT SINK
AC-37 BOARD
CK-9 BOARD
AC IN
AC 4.5V
-30V
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
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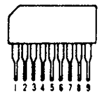
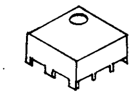
17
18
19

4-3. SEMICONDUCTORS

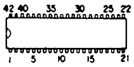
BA6208
BA7021
TA7357AP



BX-1453

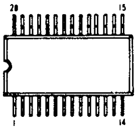


CXA1018S


42 40 35 30 25 22
1 5 10 15 21

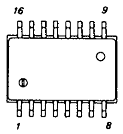
(Top view)

CXD1078M
CXK38256-080P



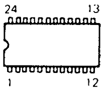
(TOP VIEW)

CXD1316DM



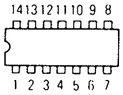
MARKING SIDE VIEW

CXL1004P
LC3517AML-15
TC9015P



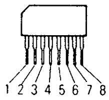
(Top view)

SN75107BN

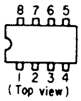

14 13 12 11 10 9 8
1 2 3 4 5 6 7

(Top view)

CX20061

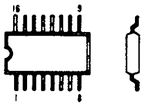


CXL5003P
CX20197
NE5532P
IR3C02AN
μPC4558C



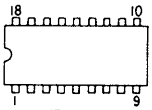
(Top view)

FA7611M
SN74LS123NS
SN74LS221NS
TC4053BFHB



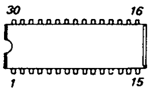
(TOP VIEW)

HA12043



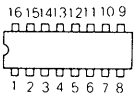
(Top view)

HA12083NT



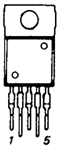
(Top view)

PCM56P-JS

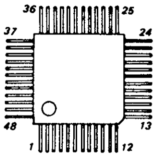

16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8

(Top view)

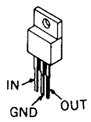
LA6500-FA
LA6500S-LR



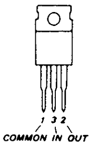
LA9200NM
MB674172U


36
25
37
24
48
13
1
12

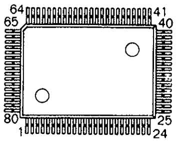
M5F7805
M5F7812
NJM78L09K
μPC7805H
μPC78M12H



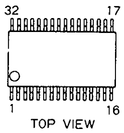
M5F7905
M5F7912
NJM79M12A


1 3 2
COMMON IN OUT

LC7863A
MB89795-107

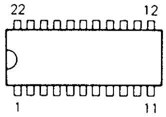

64
41
65
40
80
25
1
24

M50455-080FP



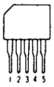
TOP VIEW

M51481P

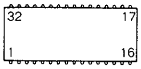


(Top view)

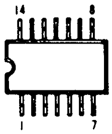
M51953BL



M5218FP

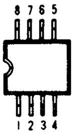


BU4066BF
NJM2901M
TC40H004F
TC4081BF
TC74HC00F
TC74HC04F
TC74HC08F
μPC324G2



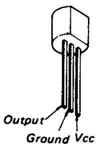
(TOP VIEW)

NJM2903M
NJM4558M
μPC358G2
μPC4082G2

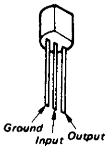


(TOP VIEW)

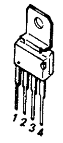
NJM78L05A


Output
Ground
Vcc

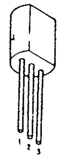
NJM79L05A
NJM79L12A


Ground
Input
Output

PQ09R04S

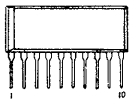


PQ12R04S

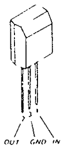


Pin 1 Vcc
2 OUTPUT
3 GND

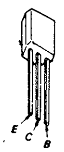
STA455C



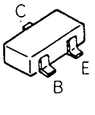
μPC78L12



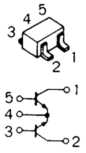
DTA114ES
DTC144ES



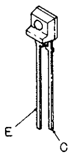
DTA114YK
DTA124EK
DTA144EK
DTC114EK
DTC144EK
2SA812
2SB624-BV4
2SC1623
2SC2223-F14
2SC3326



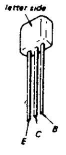
FMW1


3
4
5
2
1
5
4
3
1
2

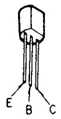
PT420FI



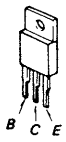
2SA1175
2SC2785


letter side
E
C
B

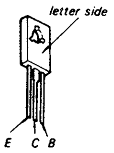
2SA1206-K1
2SC2901



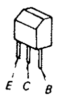
2SB1133-S



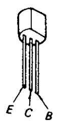
2SB731


letter side
E
C
B

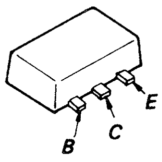
2SB733-4
2SD773-4



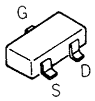
2SC2878
2SD655-E



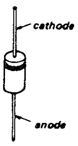
2SD999



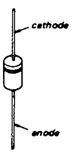
2SK209G



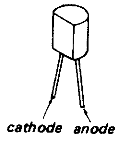
EK04
RD10EB2
RD2.7E-L2
RD33EB2
RD39EB2
10E-2


cathode
anode

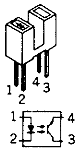
ERB81-004U1
S3S6M
31DF2


cathode
anode

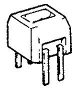
FC52M-5


cathode
anode

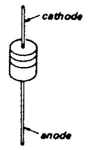
GP1S54



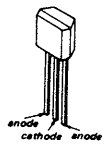
GP2S15S



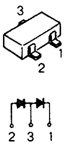
RD7.5ES-B
RD9.1ES-B
1SS119


cathode
anode

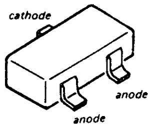
SVC211SP-CD


anode
cathode
anode

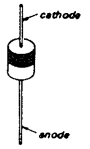
1SS123



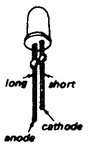
1S2837


cathode
anode
anode

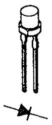
11EQS10


cathode
anode

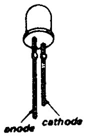
PY5504S-1
SEL4414G-D
TLUR164


long
short
cathode
anode

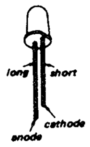
SEL2413E-D
SEL3413E-D



SLR54YC3
SLR-981A


anode
cathode

TLY113AP


long
short
cathode
anode

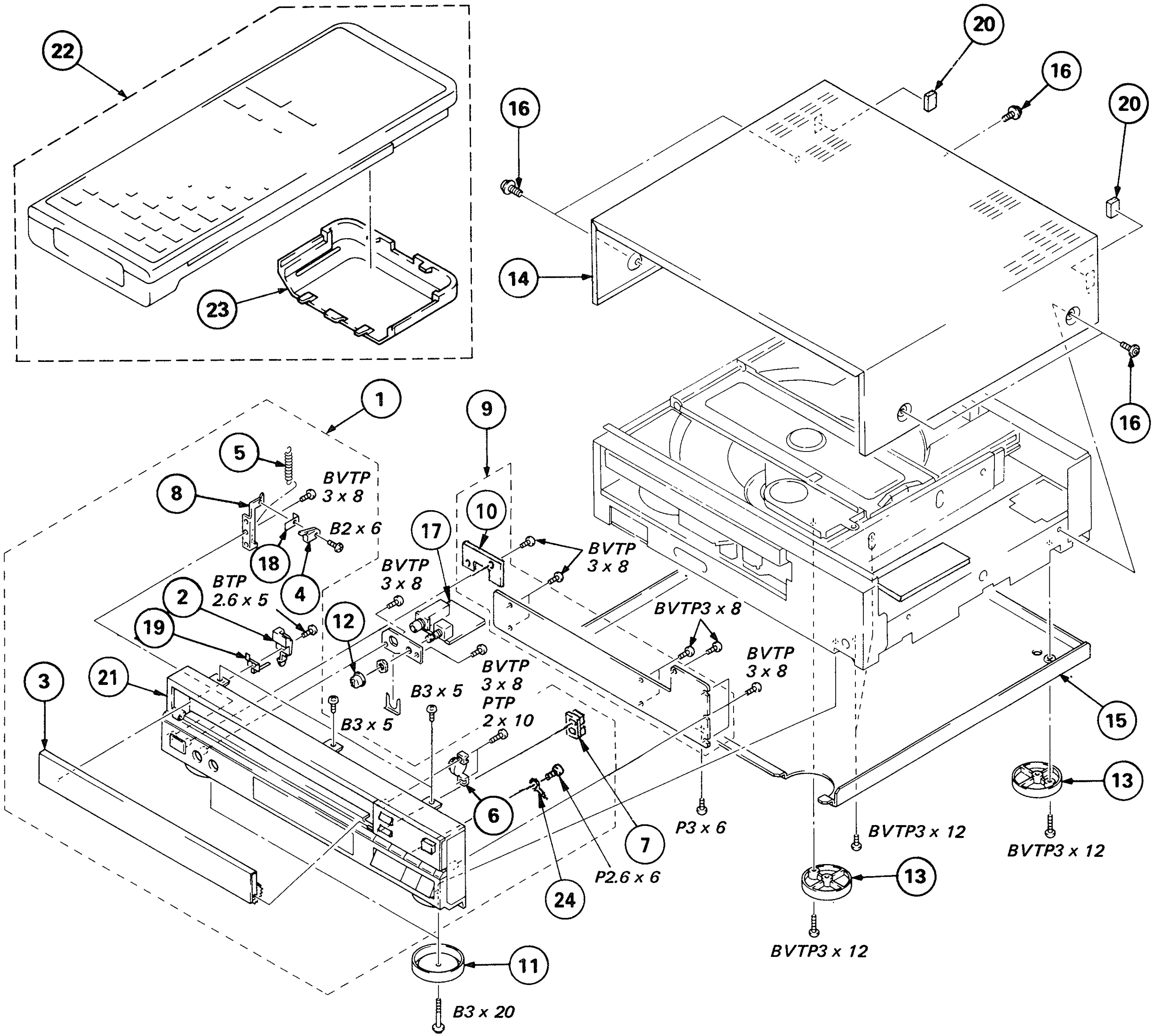
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.

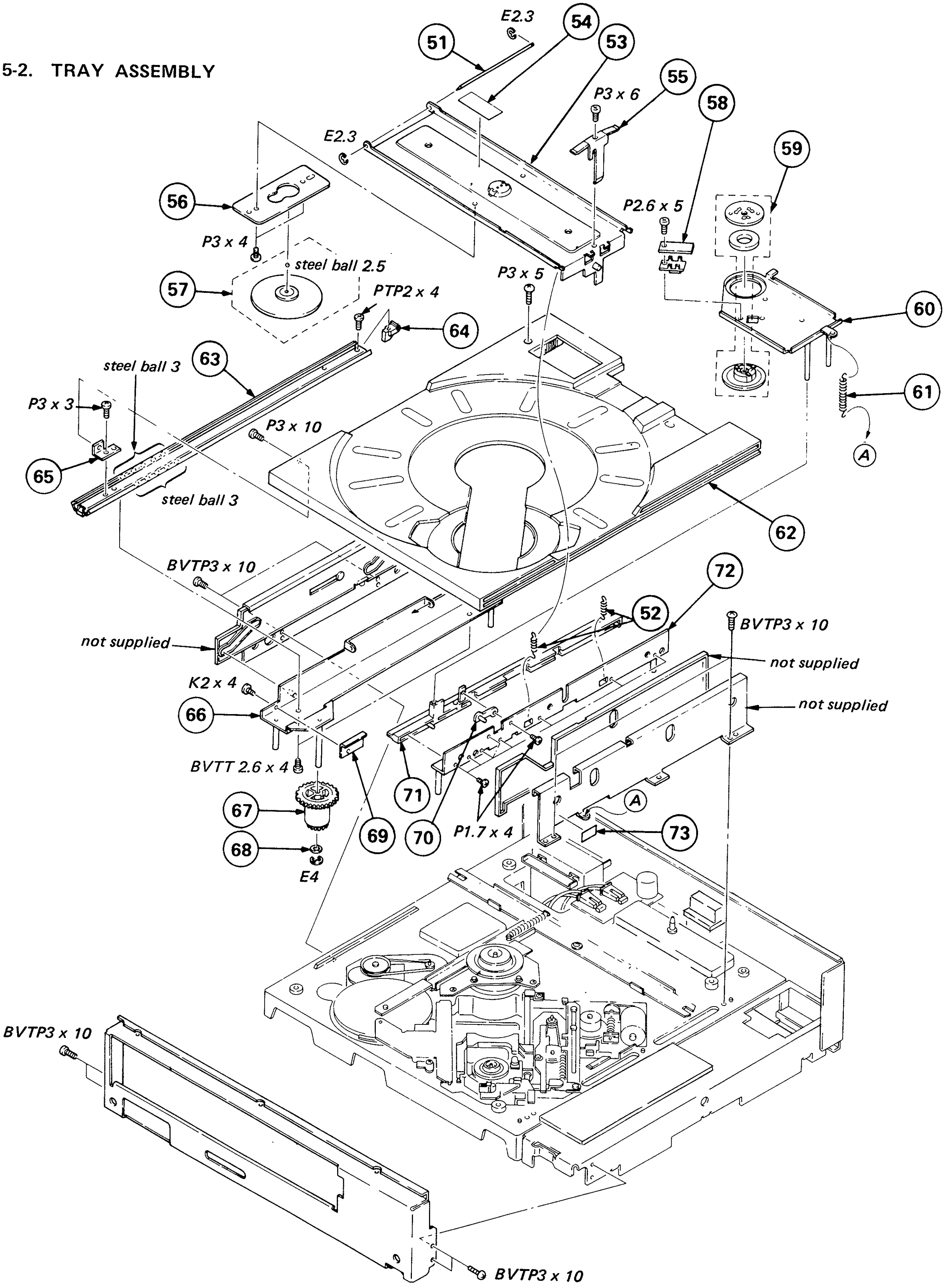
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. FRONT PANEL AND CABINET ASSEMBLIES


22
23
20
16
20
16
14
16
1
9
5
BVTP 3 x 8
8
B2 x 6
10
17
18
BVTP 3 x 8
BVTP 3 x 8
BTP 2.6 x 5
4
2
12
19
3
21
BVTP 3 x 8
PTP 2 x 10
B3 x 5
B3 x 5
BVTP3 x 8
BVTP 3 x 8
15
13
6
7
P3 x 6
BVTP3 x 12
BVTP3 x 12
24
P2.6 x 6
13
BVTP3 x 12
11
B3 x 20

No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	A-6408-115-A	PANEL SUB BLOCK ASSY, FRONT	2-8,18,19 21,24	13	X-3720-340-1	FOOT ASSY (REAR)	
2	X-3720-339-1	HOOK ASSY, DOOR		14	X-3720-354-1	CASE ASSY, UPPER	
3	X-3720-380-1	DOOR ASSY		15	*X-3720-379-1	PLATE ASSY, BOTTOM	
4	1-570-679-11	SWITCH (DOOR) (S903)		16	7-685-647-79	SCREW, TAPPING	
5	3-721-281-02	SPRING (DOOR), TENSION		17	*1-627-194-21	HP-44 BOARD	
6	3-721-204-01	DAMPER		18	*3-721-215-01	PLATE, GROUND	
7	*3-721-246-01	HOOD, REFLECTION		19	*3-721-282-01	PLATE (B), GROUND	
8	*3-721-228-01	BRACKET, DOOR		20	3-538-026-00	CUSHION	
9	*A-6421-231-A	FP-142 BOARD, COMPLETE	10	21	X-3720-381-1	PANEL ASSY, FRONT	
10	*1-627-193-11	FP-143 BOARD		22	1-465-075-11	REMOTE COMMANDER (RMT-102)	23
11	X-3720-341-1	FOOT ASSY (FRONT)		23	3-694-907-01	LID, BATTERY CASE	
12	3-713-333-01	KNOB, HP		24	7-623-507-01	LUG, 2.6	

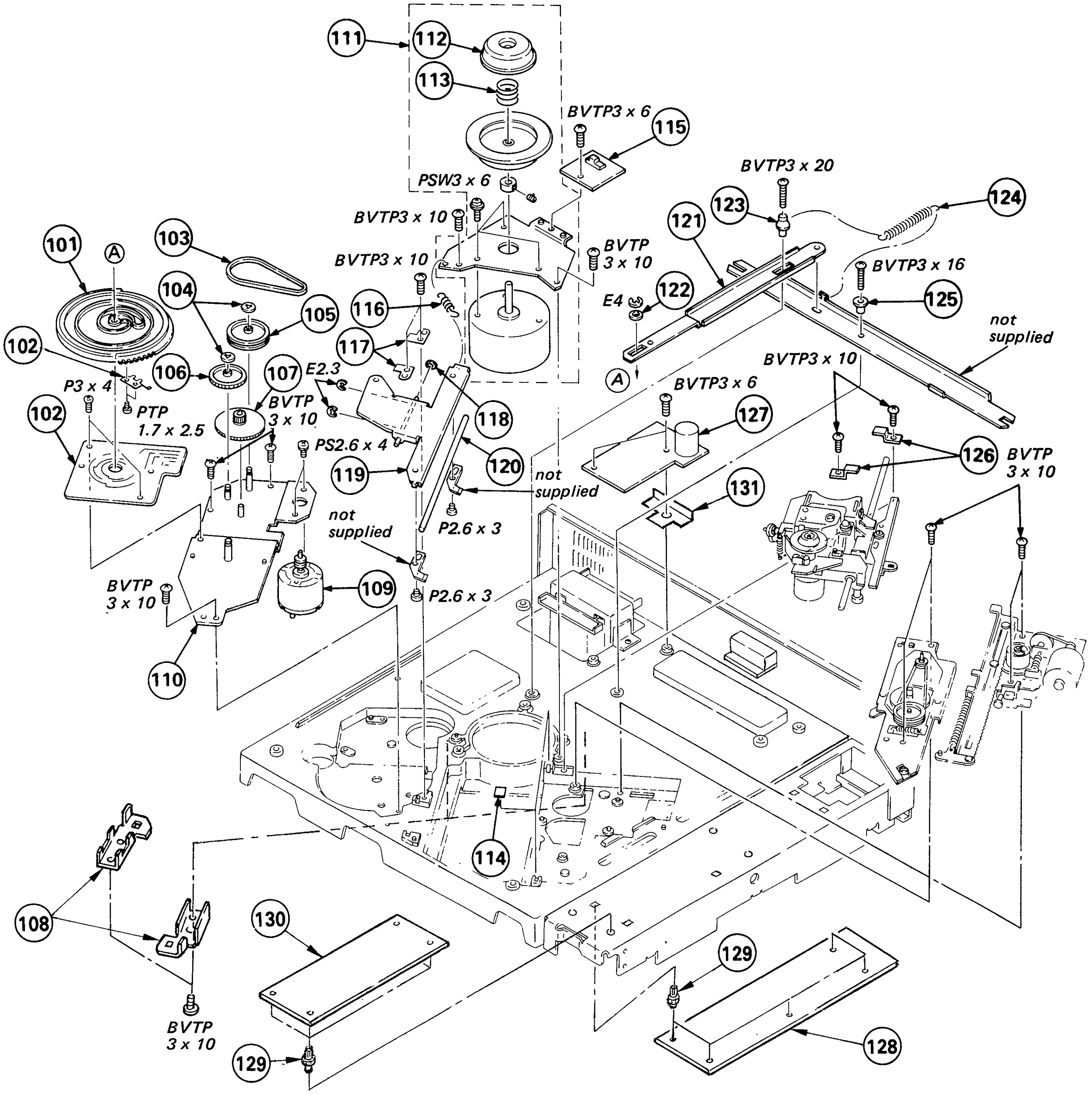
5-2. TRAY ASSEMBLY



E2.3
54
51
53
55
P3 x 6
58
E2.3
59
56
P2.6 x 5
P3 x 4
steel ball 2.5
57
P3 x 5
PTP2 x 4
60
64
63
steel ball 3
61
P3 x 3
P3 x 10
A
65
steel ball 3
62
72
BVTP3 x 10
52
BVTP3 x 10
not supplied
not supplied
K2 x 4
not supplied
66
BVTT 2.6 x 4
71
A
67
70
P1.7 x 4
73
69
68
E4
BVTP3 x 10
BVTP3 x 10

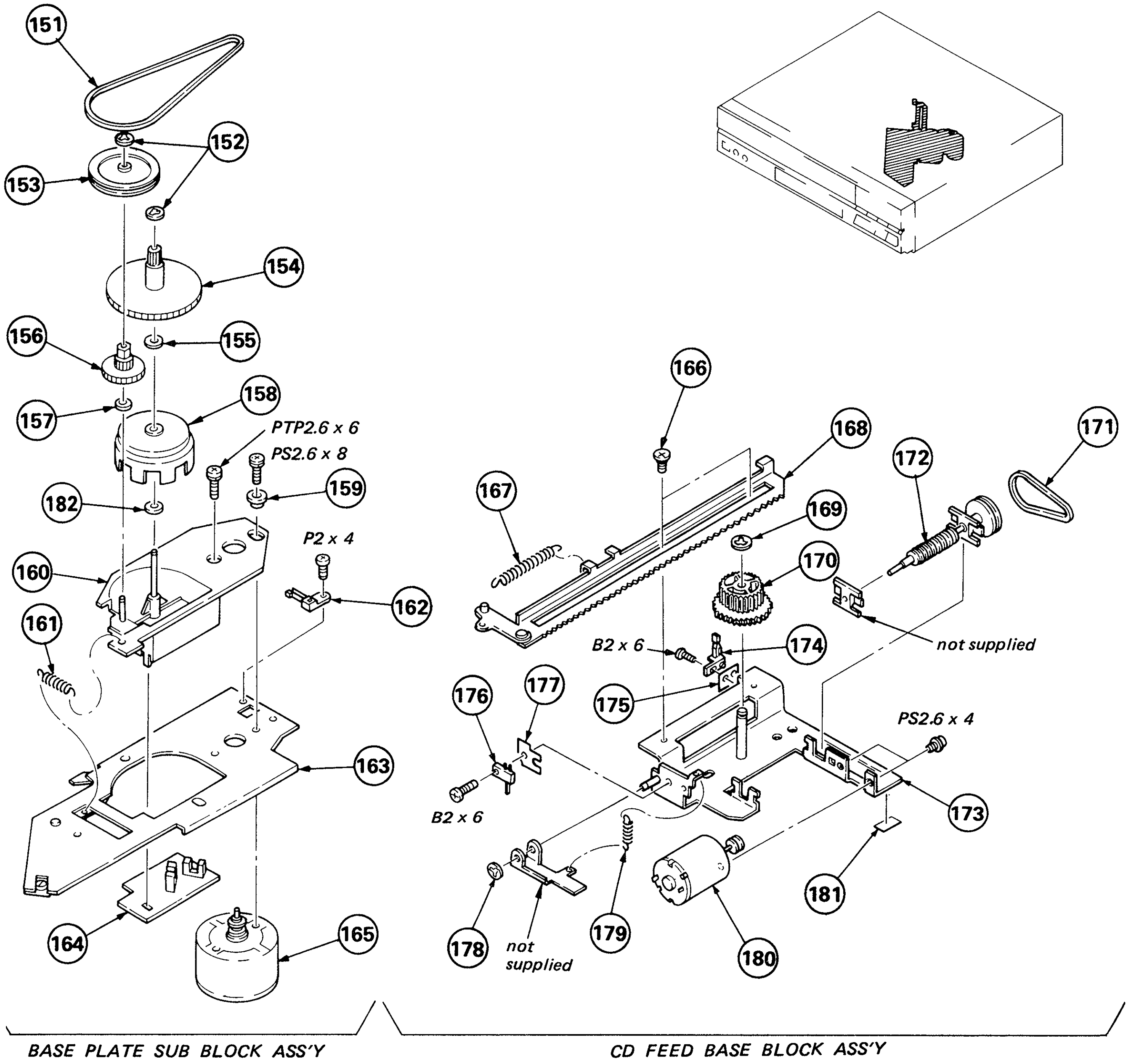
No.	Part No.	Description	Remark
51	*3-720-367-01	SHAFT, CHUCK PLATE	
52	3-720-352-01	SPRING, TENSION	
53	X-3720-326-1	PLATE ASSY, CHUCK	
54	*3-718-975-01	LABEL (ENGLISH), CAUTION	
55	3-720-402-01	SPRING	
56	*3-720-303-01	BRACKET, CHUCK	
57	X-3720-307-1	CLAMP ASSY	
58	*1-628-111-11	DC-12 BOARD	
59	X-3720-304-2	PULLEY ASSY, PRESS	
60	X-3720-317-1	CHUCK ASSY, CD	
61	3-720-365-01	SPRING, TENSION	
62	X-3720-324-1	TRAY ASSY	
63	X-3720-315-1	RAIL ASSY, SLIDE	
64	*3-720-394-01	RETAINER, RAIL	
65	*3-720-393-01	BRACKET, TRAY	
66	X-3720-319-1	GUIDE (LEFT) ASSY	
67	3-720-409-01	GEAR, TRAY DRIVING	
68	3-701-443-11	WASHER	
69	3-720-456-01	STOPPER, TRAY	
70	X-3720-301-1	LEVER ASSY, CD CHUCK	
71	3-720-412-01	GUIDE, TRAY	
72	X-3720-316-1	GUIDE (RIGHT) ASSY	
73	3-831-441-XX	CUSHION, STOPPER	

5-3. CHASSIS ASSEMBLY


111
112
113
BVTP3 x 6
115
PSW3 x 6
BVTP3 x 20
124
123
121
BVTP3 x 10
BVTP 3 x 10
101
Ⓐ
103
BVTP3 x 10
104
105
116
E4
122
BVTP3 x 16
125
not supplied
102
117
Ⓐ
BVTP3 x 10
P3 x 4
106
107
E2.3
BVTP 3 x 10
118
BVTP3 x 6
127
126
BVTP 3 x 10
102
PTP 1.7 x 2.5
PS2.6 x 4
119
120
not supplied
131
not supplied
P2.6 x 3
BVTP 3 x 10
109
P2.6 x 3
110
114
108
130
129
BVTP 3 x 10
129
128

No.	Part No.	Description	Remark
101	3-720-422-01	CAM, CONTROL	
102	1-571-189-11	SWITCH, ROTARY (ENCORDER) (S906)	
103	3-676-175-00	BELT, FWD	
104	3-669-595-00	WASHER (2), STOPPER	
105	3-713-288-01	PULLEY (C)	
106	3-720-327-01	GEAR (M)	
107	3-720-319-01	GEAR (C)	
108	*3-725-527-01	BASE, HOLDER	
109	X-3720-302-1	MOTOR ASSY, L (THREAD) (M903)	
110	X-3720-312-1	BASE ASSY, THREADING	
111	A-6415-171-A	SPM SUB BLOCK ASSY, LD (LD SPINDLE)(M902)	112,113
112	3-720-404-01	GUIDE, CENTER	
113	3-720-385-01	SPRING, COMPRESSION	
114	*3-720-468-01	SPACER, SHAFT	
115	*1-627-194-21	FG-12 BOARD	
116	3-720-347-01	SPRING, TENSION	
117	*3-720-314-01	RETAINER (C)	
118	3-701-439-11	WASHER	
119	*X-3720-320-1	LEVER ASSY, SKEW	
120	*3-720-369-01	SHAFT, SKEW LEVER	
121	X-3720-314-1	LEVER ASSY, CONTROL	
122	3-701-443-11	WASHER	
123	*3-720-339-01	COLLAR, LEVER	
124	3-720-318-01	SPRING, TENSION	
125	*3-720-336-02	COLLAR, CENTER	
126	*3-720-315-01	RETAINER (B)	
127	*1-628-107-11	AC-37 BOARD	
128	*A-6421-230-A	DS-27 BOARD, COMPLETE	
129	*4-884-834-00	SUPPORT, PC	
130	*A-6421-232-A	AF-49 BOARD, COMPLETE	
131	*3-725-583-02	SHEET, INSULATING, FUSE	

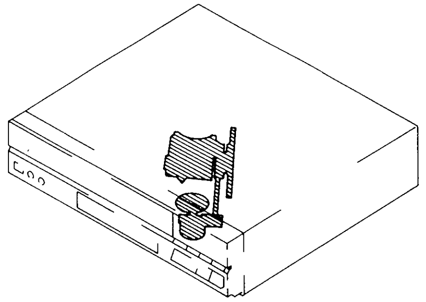
5-4. CD FEED BASE BLOCK ASSEMBLY

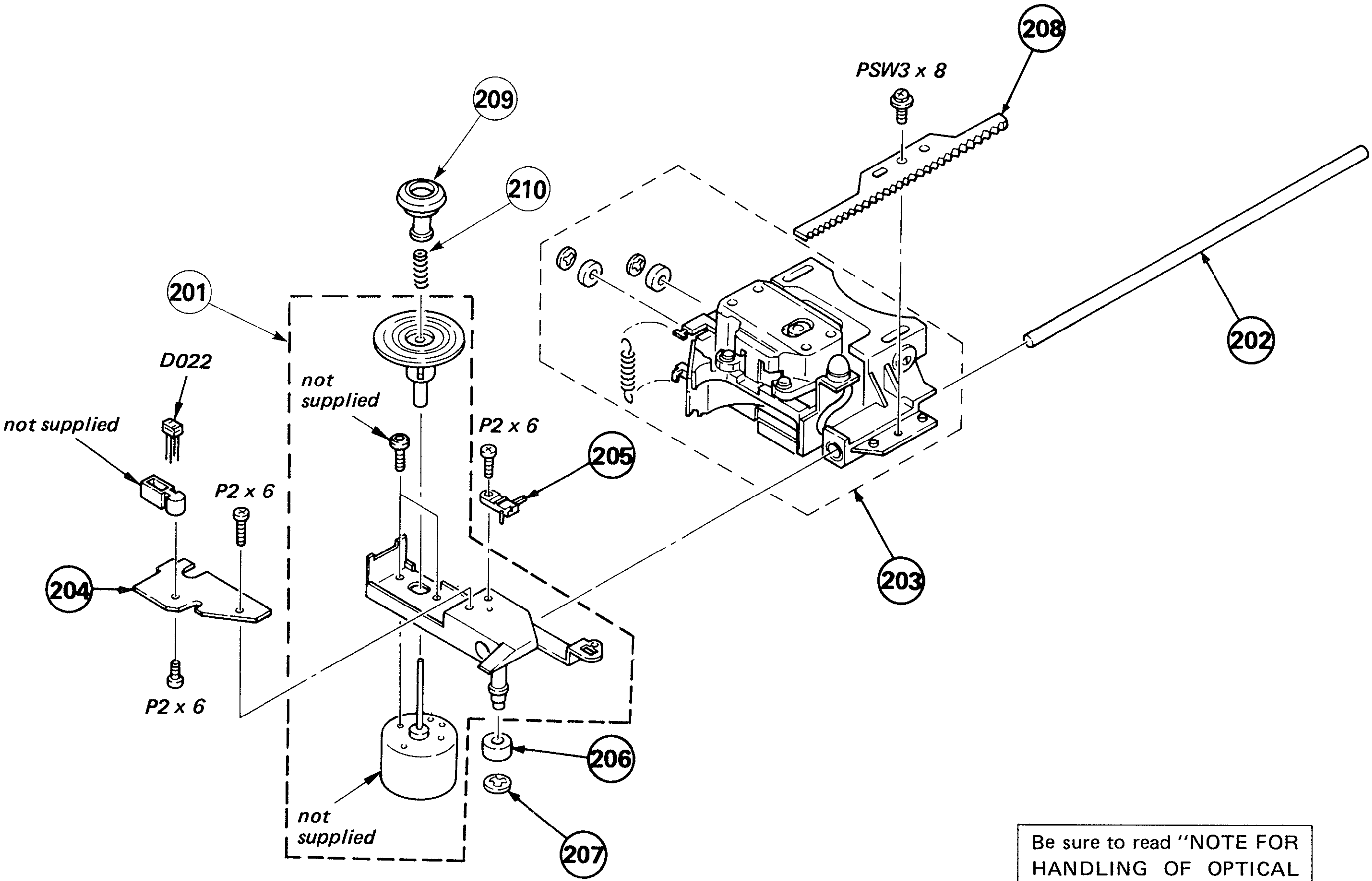

151
152
153
154
155
156
157
158
PTP2.6 x 6
PS2.6 x 8
159
182
P2 x 4
160
162
161
163
164
165
166
168
171
172
167
169
170
B2 x 6
174
not supplied
176
177
175
PS2.6 x 4
B2 x 6
173
181
178
not supplied
179
180
BASE PLATE SUB BLOCK ASS'Y
CD FEED BASE BLOCK ASS'Y

No.	Part No.	Description	Remark
151	3-725-503-01	BELT	
152	3-669-465-00	WASHER (1.5), STOPPER	
153	3-720-379-01	PULLEY	
154	3-720-377-01	GEAR, PINION	
155	3-701-438-11	WASHER, 2.5	
156	3-720-378-01	GEAR, MIDWAY	
157	3-701-437-11	WASHER	
158	3-720-374-01	SENSOR, FG	
159	*3-720-376-01	COLLAR, FEED MOTOR BASE	
160	X-3720-311-2	PLATE (A) ASSY, BASE, FEED MOTOR	
161	3-648-626-11	SPRING, TENSION	
162	1-570-112-11	SWITCH, LEAF (LD IN LIMIT) (S901)	
163	X-3720-318-1	PLATE (B) ASSY, BASE, FEED MOTOR	
164	*1-628-109-11	FG-11 BOARD	
165	X-3720-310-1	MOTOR ASSY, FEED (TILT) (M901)	
166	3-720-322-01	SCREW, STEP	

No.	Part No.	Description	Remark
167	3-534-924-11	SPRING, TENSION	
168	X-3720-313-1	PLATE ASSY, RACK, CD FEED	
169	3-696-510-01	WASHER (3), STOPPER	
170	3-720-338-01	GEAR, CD DRIVING	
171	3-569-705-00	BELT, RELAY, COUNTER	
172	X-3720-328-1	WORM ASSY	
173	*X-3720-303-1	BASE ASSY, RM FITTING	
174	1-570-203-11	SWITCH, LEAF(TRANSFER)(CD SPINDLE)(S904)	
175	*3-721-243-01	SHEET (B), INSULATING	
176	1-570-771-21	SWITCH (MISS CHUCK) (S905)	
177	*3-720-448-01	SHEET, INSULATING	
178	3-669-596-00	WASHER (2.3), STOPPER	
179	3-720-371-01	SPRING, TENSION	
180	X-3720-305-1	MOTOR ASSY (CD FEED) (M905)	
181	3-831-441-XX	CUSHION, STOPPER	
182	3-701-438-01	WASHER	

5-5. OPTICAL BLOCK ASSEMBLY



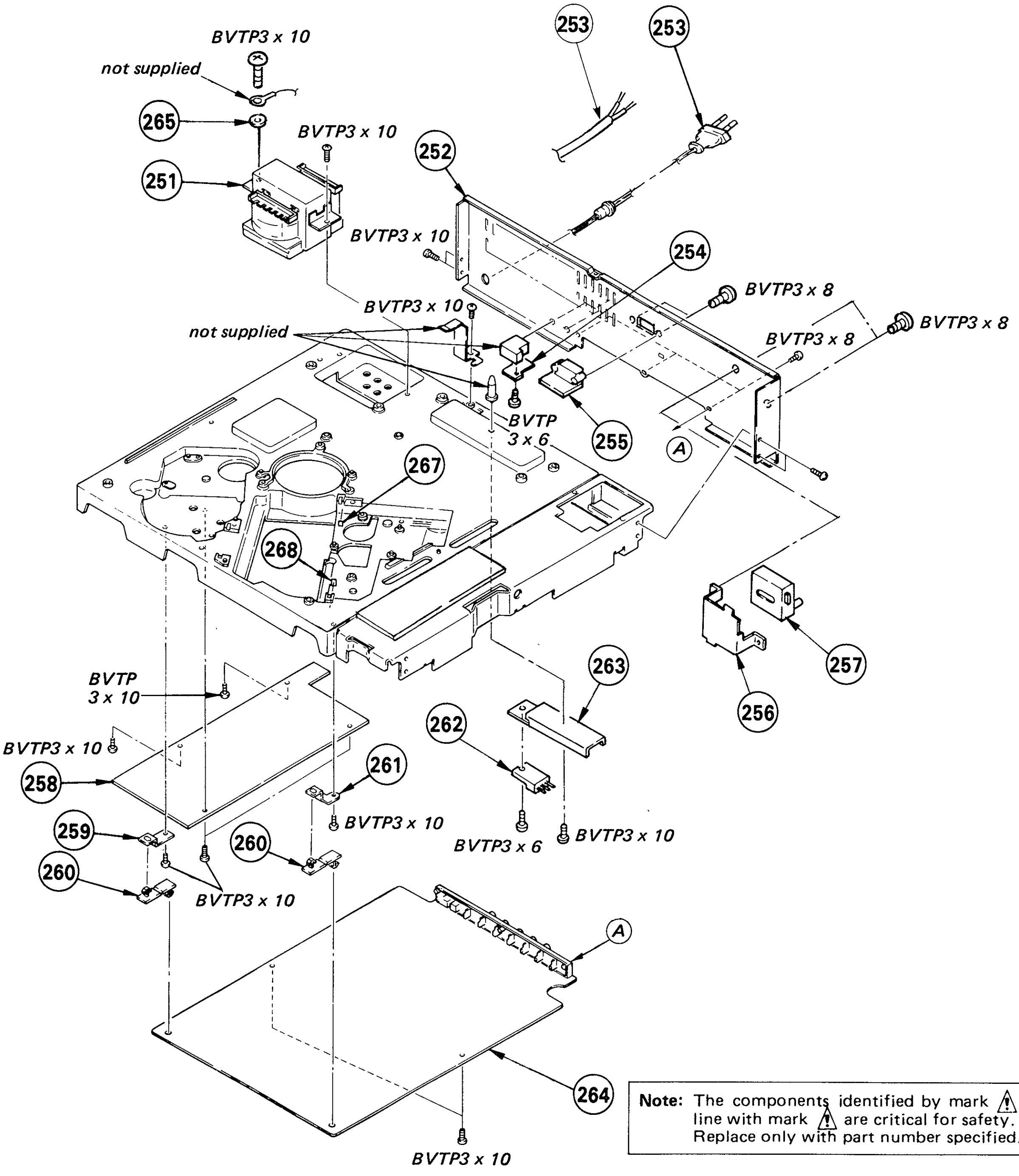

208
PSW3 x 8
209
210
201
202
D022
not supplied
not supplied
P2 x 6
205
P2 x 6
204
P2 x 6
203
206
not supplied
207

Be sure to read "NOTE FOR HANDLING OF OPTICAL BLOCK ASS'Y" on page 8, when replacing the optical block assembly.

No.	Part No.	Description	Remark
201	A-6415-182-A	CARRIAGE ASSY, CD SP	
202	*3-720-307-01	SHAFT, FEED	
203	⚠8-848-090-11	DEVICE, OPTICAL KHS-110A	
204	*1-628-108-11	FG-10 BOARD	
205	1-570-771-11	SWITCH (CD IN LIMIT) (S902)	
206	3-720-310-01	ROLLER	
207	3-696-510-01	WASHER (3), STOPPER	
208	3-720-389-01	PLATE, RACK	
209	3-720-381-01	CAP, CENTER	
210	3-720-384-01	SPRING, COMPRESSION	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-6. MAIN BOARDS AND REAR PANEL ASSEMBLY


BVTP3 x 10
not supplied
265
251
BVTP3 x 10
253
253
252
BVTP3 x 10
254
BVTP3 x 8
BVTP3 x 8
BVTP3 x 8
BVTP3 x 10
not supplied
BVTP 3 x 6
255
A
267
268
257
256
263
BVTP 3 x 10
BVTP3 x 10
258
262
261
BVTP3 x 10
259
260
BVTP3 x 6
BVTP3 x 10
260
BVTP3 x 10
A
264
BVTP3 x 10

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
251	⚠.1-449-383-12	TRANSFORMER, POWER (T002)	
252	*3-725-588-01	PANEL, REAR (AEP MODEL)	
	*3-725-588-12	PANEL, REAR (AUS MODEL)	
253	⚠.1-555-795-00	CORD, POWER, EULO PLUG (AEP MODEL)	
	⚠ 1-551-884-32	CORD, POWER (AUS MODEL)	
254	*1-628-106-11	CK-9 BOARD	
255	*1-628-113-11	CL-10 BOARD	
256	*3-712-894-01	BRACKET	
257	1-466-014-11	MODULATOR, RF (RFU-2007)	
258	*A-6421-228-A	PS-188 BOARD, COMPLETE	

No.	Part No.	Description	Remark
259	*3-721-244-01	BRACKET (LEFT), LV HINGE	
260	*3-696-448-01	HINGE, SS	
261	*3-721-245-01	BRACKET (RIGHT), LV HINGE	
262	8-759-400-63	IC UPC7805H (IC001)	
263	*3-721-257-11	HEAT SINK	
264	*A-6421-229-A	LP-3 BOARD, COMPLETE	
265	7-623-422-07	LW 3, TYPE B	
266	*A-6421-232-A	AF-49 BOARD, COMPLETE	
267	9-911-838-XX	CUSHION, METER	
268	3-846-312-00	SPACER	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- SEMICONDUCTORS
  In each case, U: μ, for example:
  UA. . . : μA. . . , UPA. . . : μPA. . . ,
  UPB. . . : μPB. . . , UPC. . . : μPC. . . ,
  UPD. . . : μPD. . .
- CAPACITORS
  MF: μF, PF: μμF
- COILS
  MMH: mH, UH: μH

Ref.No	Part No.	Description				Remark
	*A-6421-228-A	PS-188 BOARD, COMPLETE (Ref.No. 5,000 Series) ***********************				
	*1-533-189-11	HOLDER, FUSE				
	*3-720-461-01	HEAT SINK, IC105				
	*3-720-462-01	HEAT SINK, IC106				
	*3-720-463-01	HEAT SINK				
	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3				
		CAPACITOR				
C101	1-125-349-00	ELECT	6800MF	20%	25V	
C102	1-125-349-00	ELECT	6800MF	20%	25V	
C103	1-125-349-00	ELECT	6800MF	20%	25V	
C104	1-124-120-11	ELECT	220MF	20%	16V	
C105	1-124-120-11	ELECT	220MF	20%	16V	
C106	1-126-101-11	ELECT	100MF	20%	16V	
C107	1-161-494-00	CERAMIC	0.022MF		25V	
C108	1-102-121-00	CERAMIC	0.0022MF	10%	50V	
C109	1-102-114-00	CERAMIC	470PF	10%	50V	
C110	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C111	1-124-927-11	ELECT	4.7MF	20%	50V	
C112	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C113	1-161-772-11	CERAMIC	0.1MF	10%	25V	
C114	1-124-604-00	ELECT	330MF	20%	10V	
C115	1-124-604-00	ELECT	330MF	20%	10V	
C116	1-161-061-11	CERAMIC	0.068MF	10%	50V	
C117	1-124-473-11	ELECT	1000MF	20%	10V	
C118	1-124-604-00	ELECT	330MF	20%	10V	
C119	1-161-061-11	CERAMIC	0.068MF	10%	50V	
C131	1-124-912-11	ELECT	330MF	20%	50V	
C132	1-124-910-11	ELECT	47MF	20%	50V	
C133	1-124-122-11	ELECT	100MF	20%	50V	
C134	1-161-024-00	CERAMIC	0.082MF	10%	25V	
C135	1-124-482-11	ELECT	33MF	20%	25V	
C136	1-124-479-11	ELECT	330MF	20%	25V	
C137	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C138	1-124-478-11	ELECT	100MF	20%	25V	
C139	1-161-772-11	CERAMIC	0.1MF	10%	25V	
C140	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C141	1-124-479-11	ELECT	330MF	20%	25V	
C142	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C143	1-124-478-11	ELECT	100MF	20%	25V	
C144	1-124-477-11	ELECT	47MF	20%	25V	
C201	1-161-051-00	CERAMIC	0.01MF	10%	25V	
C202	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C203	1-102-114-00	CERAMIC	470PF	10%	50V	
C204	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C207	1-124-120-11	ELECT	220MF	20%	25V	
C208	1-124-120-11	ELECT	220MF	20%	25V	
C209	1-124-910-11	ELECT	47MF	20%	50V	
C210	1-124-766-00	ELECT	0.1MF	20%	50V	
C215	1-161-772-11	CERAMIC	0.1MF	10%	25V	

Ref.No	Part No.	Description	Remark
		CONNECTOR	
CN012	*1-564-420-11	HEADER, SPRING (POWER) 3P	
CN013	*1-564-421-11	HEADER, SPRING (POWER) 4P	
CN102	*1-560-893-00	PIN, CONNECTOR 5P	
CN103	*1-560-896-00	PIN, CONNECTOR 8P	
CN104	*1-560-892-00	PIN, CONNECTOR 4P	
CN201	*1-560-890-00	PIN, CONNECTOR 2P	
CN202	*1-564-003-00	PIN, CONNECTOR 4P	
		DIODE	
D101	8-719-500-65	DIODE S3S6M	
D102	8-719-200-02	DIODE 10E-2	
D103	8-719-200-02	DIODE 10E-2	
D104	8-719-948-76	DIODE ERB81-004U1	
D105	8-719-948-76	DIODE ERB81-004U1	
D106	8-719-500-65	DIODE S3S6M	
D107	8-719-500-65	DIODE S3S6M	
D108	8-719-114-15	DIODE RD39ES-B2	
D110	8-719-200-02	DIODE 10E-2	
D111	8-719-112-64	DIODE RD10ES-B2	
D112	8-719-110-76	DIODE RD33ES-B1	
D113	8-719-500-65	DIODE S3S6M	
D201	8-719-300-92	DIODE EK04	
D202	8-719-300-92	DIODE EK04	
D203	8-719-300-92	DIODE EK04	
D204	8-719-300-92	DIODE EK04	
D205	8-719-921-20	DIODE 1SS119	
		FUSE	
F101	⚠.1-532-299-00	FUSE, TIME-LAG (T5A 250V)	
F102	⚠.1-532-299-00	FUSE, TIME-LAG (T5A 250V)	
F103	⚠ 1-576-047-11	FUSE, MICRO (F1.25A 125V)	
F104	⚠ 1-576-047-11	FUSE, MICRO (F1.25A 125V)	
		IC	
IC101	8-759-946-29	IC PQ12R04S	
IC102	8-759-700-54	IC NJM7809K	
IC104	8-759-946-09	IC FA7611M	
IC105	8-759-945-51	IC PQ09R04S	
IC106	8-759-803-42	IC LA6500-FA	
IC201	8-759-745-58	IC UPC4558C	
IC202	8-759-745-60	IC NJM4560D	
IC203	8-759-745-58	IC UPC4558C	
IC204	8-749-920-02	IC STA455C	
		COIL	
L101	1-410-938-11	COIL, CHOKE 220UH	
L102	1-410-939-11	COIL, CHOKE 68UH	
L103	1-410-938-11	COIL, CHOKE 220UH	
L104	1-410-939-11	COIL, CHOKE 68UH	
L201	1-410-937-11	COIL, CHOKE 380UH	

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TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-804-68	TRANSISTOR 2SB1133-S	
Q102	8-729-804-68	TRANSISTOR 2SB1133-S	
Q108	8-729-113-33	TRANSISTOR 2SB733-4	
Q111	8-729-900-89	TRANSISTOR DTC144ES	
Q201	8-729-178-54	TRANSISTOR 2SC2785	
Q202	8-729-900-61	TRANSISTOR DTA114ES	
Q203	8-729-178-54	TRANSISTOR 2SC2785	
Q204	8-729-117-54	TRANSISTOR 2SA1175	
Q205	8-729-117-54	TRANSISTOR 2SA1175	
Q206	8-729-178-54	TRANSISTOR 2SC2785	
Q207	8-729-900-80	TRANSISTOR DTC114ES	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	1-215-447-00	METAL	12K	1%	1/6W	
R102	1-215-465-00	METAL	68K	1%	1/6W	
R103	1-247-888-11	CARBON	240K	5%	1/4W	
R104	1-249-438-11	CARBON	56K	5%	1/4W	
R105	1-215-430-00	METAL	2.4K	1%	1/6W	
R107	1-249-441-11	CARBON	100K	5%	1/4W	
R108	1-215-453-00	METAL	22K	1%	1/6W	
R109	1-247-751-11	CARBON	820	5%	1/2W	
R110	1-249-418-11	CARBON	1.2K	5%	1/4W	
R111	1-247-751-11	CARBON	820	5%	1/2W	
R112	1-249-416-11	CARBON	820	5%	1/4W	
R124	1-249-416-11	CARBON	820	5%	1/4W	
R125	1-249-405-11	CARBON	100	5%	1/4W	
R128 ⚠.	1-212-875-00	FUSIBLE	56	5%	1/4W	F
R129	1-215-471-00	METAL	120K	1%	1/6W	
R131	1-215-453-00	METAL	22K	1%	1/6W	
R134	1-215-455-00	METAL	27K	1%	1/6W	
R135 ⚠.	1-217-259-00	WIREWOUND	6.8	10%	3W	F
R136	1-249-429-11	CARBON	10K	5%	1/4W	
R137	1-249-429-11	CARBON	10K	5%	1/4W	
R138	1-247-901-11	CARBON	820K	5%	1/4W	
R139	1-247-897-11	CARBON	560K	5%	1/4W	
R140 ⚠.	1-212-851-00	FUSIBLE	5.6	5%	1/4W	F
R143	1-249-421-11	CARBON	2.2K	5%	1/4W	
R145	1-249-389-11	CARBON	4.7	5%	1/4W	
R201	1-249-429-11	CARBON	10K	5%	1/4W	
R202	1-249-441-11	CARBON	100K	5%	1/4W	
R204	1-249-425-11	CARBON	4.7K	5%	1/4W	
R205	1-249-425-11	CARBON	4.7K	5%	1/4W	
R206	1-249-431-11	CARBON	15K	5%	1/4W	
R207	1-249-437-11	CARBON	47K	5%	1/4W	
R208	1-249-429-11	CARBON	10K	5%	1/4W	
R209	1-249-437-11	CARBON	47K	5%	1/4W	
R210	1-249-427-11	CARBON	6.8K	5%	1/4W	
R211	1-249-427-11	CARBON	6.8K	5%	1/4W	
R212	1-249-431-11	CARBON	15K	5%	1/4W	
R213	1-249-431-11	CARBON	15K	5%	1/4W	
R214	1-249-433-11	CARBON	22K	5%	1/4W	
R215 ⚠.	1-215-913-11	WIREWOUND	220	10%	2W	F
R216 ⚠.	1-215-913-11	WIREWOUND	220	10%	2W	F
R217 ⚠.	1-215-913-11	WIREWOUND	220	10%	2W	F
R218 ⚠.	1-215-913-11	WIREWOUND	220	10%	2W	F
R219	1-215-469-00	METAL	100K	1%	1/6W	
R220	1-215-469-00	METAL	100K	1%	1/6W	
R221	1-215-445-00	METAL	10K	1%	1/6W	
R222	1-215-445-00	METAL	10K	1%	1/6W	
R223	1-249-409-11	CARBON	220	5%	1/4W	
R224	1-247-895-00	CARBON	470K	5%	1/4W	
R255	1-249-401-11	CARBON	47	5%	1/4W	
R256	1-249-401-11	CARBON	47	5%	1/4W	
R257	1-249-401-11	CARBON	47	5%	1/4W	
R258	1-249-401-11	CARBON	47	5%	1/4W	

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Part No.	Description	Remark
*A-6421-229-A	LP-3 BOARD, COMPLETE *********************	(Ref.No. 1,000 Series)
*3-674-372-00	HOLDER (A), LED	
3-721-270-01	PLATE, GROUND, JACK	

CAPACITOR

Ref.No	Part No.	Description			
C001	1-123-661-00	ELECT	100MF	20%	6.3V
C002	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C003	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C004	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C005	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C006	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C007	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C008	1-126-154-11	ELECT	47MF	20%	6.3V
C009	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C010	1-126-154-11	ELECT	47MF	20%	6.3V
C011	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C012	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C013	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C014	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C015	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C016	1-126-094-11	ELECT	4.7MF	20%	25V
C017	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C018	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C019	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C020	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C021	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C022	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C023	1-126-157-11	ELECT	10MF	20%	16V
C024	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C025	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C026	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C027	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C028	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C029	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C030	1-123-661-00	ELECT	100MF	20%	6.3V

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			Remark
C031	1-131-342-00	ELECT(SOLID)	0.15MF	5%	25V
C032	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C033	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C034	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C035	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C036	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C037	1-124-234-00	ELECT	22MF	20%	16V
C038	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C039	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C040	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C041	1-124-225-00	ELECT	100MF	20%	6.3V
C042	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C043	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C044	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C045	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C046	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C101	1-124-589-11	ELECT	47MF	20%	16V
C102	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C103	1-123-611-00	ELECT	1MF	20%	50V
C104	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C105	1-123-611-00	ELECT	1MF	20%	50V
C106	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C107	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C108	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C109	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C111	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C112	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C113	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C114	1-124-589-11	ELECT	47MF	20%	16V
C115	1-126-157-11	ELECT	10MF	20%	16V
C116	1-126-157-11	ELECT	10MF	20%	16V
C117	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C118	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C119	1-124-120-11	ELECT	220MF	20%	16V
C120	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C121	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C122	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C123	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C124	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C125	1-124-443-00	ELECT	100MF	20%	10V
C126	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C127	1-136-165-00	MYLAR	0.1MF	10%	50V
C128	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C129	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C130	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C131	1-126-157-11	ELECT	10MF	20%	16V
C133	1-124-589-11	ELECT	47MF	20%	16V
C135	1-126-157-11	ELECT	10MF	20%	16V
C136	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C137	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C138	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C140	1-124-589-11	ELECT	47MF	20%	16V
C141	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C142	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C143	1-126-157-11	ELECT	10MF	20%	16V
C144	1-124-589-11	ELECT	47MF	20%	16V
C145	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C146	1-124-589-11	ELECT	47MF	20%	16V
C147	1-124-589-11	ELECT	47MF	20%	16V
C148	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C150	1-126-157-11	ELECT	10MF	20%	16V
C152	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C153	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C154	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C155	1-126-157-11	ELECT	10MF	20%	16V
C156	1-126-094-11	ELECT	4.7MF	20%	25V
C157	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C158	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C159	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C160	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C162	1-124-463-00	ELECT	0.1MF	20%	50V
C163	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C164	1-124-589-11	ELECT	47MF	20%	16V
C165	1-126-157-11	ELECT	10MF	20%	16V
C166	1-126-163-11	ELECT	4.7MF	20%	50V
C167	1-123-661-00	ELECT	100MF	20%	6.3V
C168	1-124-589-11	ELECT	47MF	20%	16V
C169	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C170	1-124-589-11	ELECT	47MF	20%	16V
C171	1-124-589-11	ELECT	47MF	20%	16V
C172	1-124-589-11	ELECT	47MF	20%	16V
C173	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C174	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C175	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C176	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C177	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C178	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C179	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C180	1-124-589-11	ELECT	47MF	20%	16V
C181	1-126-157-11	ELECT	10MF	20%	16V
C182	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C183	1-124-589-11	ELECT	47MF	20%	16V
C186	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C187	1-126-101-11	ELECT	100MF	20%	16V
C188	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C189	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C190	1-123-611-00	ELECT	1MF	20%	50V
C191	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C192	1-124-443-00	ELECT	100MF	20%	10V
C193	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C194	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C195	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C196	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C197	1-126-157-11	ELECT	10MF	20%	16V
C198	1-124-464-11	ELECT	0.22MF	20%	50V
C200	1-163-109-00	CERAMIC CHIP	82PF	5%	50V

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description			Remark
C201	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C202	1-124-589-11	ELECT	47MF	20%	16V
C203	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C204	1-136-161-00	MYLAR	0.047MF	10%	50V
C205	1-123-611-00	ELECT	1MF	20%	50V
C206	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C207	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C208	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C209	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C211	1-131-381-00	TANTALUM	47MF	10%	6.3V
C212	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C213	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C214	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C216	1-136-153-00	MYLAR	0.01MF	10%	50V
C217	1-124-589-11	ELECT	47MF	20%	16V
C218	1-130-477-00	MYLAR	0.0033MF	10%	50V
C219	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C220	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C221	1-124-589-11	ELECT	47MF	20%	16V
C222	1-136-153-00	MYLAR	0.01MF	10%	50V
C223	1-136-153-00	MYLAR	0.01MF	10%	50V
C224	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C226	1-136-153-00	MYLAR	0.01MF	10%	50V
C227	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C228	1-124-589-11	ELECT	47MF	20%	16V
C229	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C230	1-130-490-11	MYLAR	0.039MF	5%	50V
C231	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C232	1-124-589-11	ELECT	47MF	20%	16V
C233	1-124-443-00	ELECT	100MF	20%	10V
C234	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C235	1-124-443-00	ELECT	100MF	20%	10V
C236	1-124-589-11	ELECT	47MF	20%	16V
C237	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C238	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C239	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C240	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C241	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C242	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C243	1-124-589-11	ELECT	47MF	20%	16V
C244	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C245	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C246	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C247	1-126-157-11	ELECT	10MF	20%	16V
C248	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C249	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C250	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C251	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C252	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C253	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C254	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C255	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C256	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C257	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C258	1-123-611-00	ELECT	1MF	20%	50V
C259	1-124-589-11	ELECT	47MF	20%	16V
C260	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C261	1-124-589-11	ELECT	47MF	20%	16V
C262	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C263	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C264	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C265	1-123-611-00	ELECT	1MF	20%	50V
C266	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C267	1-136-165-00	MYLAR	0.1MF	10%	50V
C269	1-123-661-00	ELECT	100MF	20%	6.3V
C401	1-124-499-11	ELECT	1MF	20%	50V
C402	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C403	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C404	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C405	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C406	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C407	1-124-465-00	ELECT	0.47MF	20%	50V
C408	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C409	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C410	1-123-661-00	ELECT	100MF	20%	6.3V
C411	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C412	1-123-661-00	ELECT	100MF	20%	6.3V
C413	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C414	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C415	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C416	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C419	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C420	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C425	1-130-489-00	MYLAR	0.033MF	5%	50V
C426	1-130-491-00	MYLAR	0.047MF	5%	50V
C427	1-130-484-00	MYLAR	0.012MF	5%	50V
C428	1-130-485-00	MYLAR	0.015MF	5%	50V
C429	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C430	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C431	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C434	1-124-284-00	ELECT	10MF	20%	16V
C435	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C436	1-130-495-00	MYLAR	0.1MF	5%	50V
C439	1-130-495-00	MYLAR	0.1MF	5%	50V
C442	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C443	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C446	1-131-344-00	TANTALUM	0.33MF	10%	35V
C448	1-126-154-11	ELECT	47MF	20%	6.3V
C459	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C460	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C461	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C462	1-124-589-11	ELECT	47MF	20%	16V
C463	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C464	1-124-247-00	ELECT	10MF	20%	25V
C465	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C466	1-124-247-00	ELECT	10MF	20%	25V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
C467	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C468	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C469	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C470	1-136-155-00	MYLAR 0.015MF	10%	50V
C471	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C472	1-126-157-11	ELECT 10MF	20%	16V
C473	1-130-528-00	MYLAR 0.1MF	5%	50V
C474	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C475	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C476	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C477	1-136-165-00	MYLAR 0.1MF	10%	50V
C480	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C481	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C482	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C483	1-163-018-00	CERAMIC CHIP 0.0056MF	10%	50V
C550	1-123-661-00	ELECT 100MF	20%	6.3V
C551	1-123-661-00	ELECT 100MF	20%	6.3V
C552	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C553	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C561	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C590	1-124-234-00	ELECT 22MF	20%	16V
C591	1-124-589-11	ELECT 47MF	20%	16V
C600	1-124-247-00	ELECT 10MF	20%	25V
C601	1-124-247-00	ELECT 10MF	20%	25V
C602	1-126-163-11	ELECT 4.7MF	20%	50V
C603	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C604	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C605	1-126-151-11	ELECT 4.7MF	20%	16V
C606	1-124-589-11	ELECT 47MF	20%	16V
C607	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C608	1-124-589-11	ELECT 47MF	20%	16V
C609	1-123-661-00	ELECT 100MF	20%	6.3V
C612	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C613	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C614	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C640	1-124-268-00	ELECT 0.22MF	20%	50V
C641	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C642	1-124-247-00	ELECT 10MF	20%	25V
C643	1-124-247-00	ELECT 10MF	20%	25V
C644	1-126-099-11	ELECT 2.2MF	20%	35V
C660	1-136-169-00	MYLAR 0.22MF	10%	50V
C661	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C662	1-124-268-00	ELECT 0.22MF	20%	50V
C663	1-136-161-00	MYLAR 0.047MF	10%	50V
C664	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C699	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V

FILTER

Ref.No	Part No.	Description	Remark
CF101	1-567-657-11	FILTER, CERAMIC (SFS-MA TYPE) (3.75MHz)	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN001	*1-560-896-00	PIN, CONNECTOR 8P	
CN002	*1-564-010-11	PIN, CONNECTOR 11P	
CN003	*1-564-001-11	PIN, CONNECTOR 2P	
CN004	*1-564-001-11	PIN, CONNECTOR 2P	
CN005	*1-564-002-00	PIN, CONNECTOR 3P	
CN006	*1-564-002-00	PIN, CONNECTOR 3P	
CN007	*1-564-002-00	PIN, CONNECTOR 3P	
CN008	*1-564-001-11	PIN, CONNECTOR 2P	
CN009	*1-564-001-11	PIN, CONNECTOR 2P	
CN010	*1-564-004-00	PIN, CONNECTOR 5P	
CN011	*1-564-001-11	PIN, CONNECTOR 2P	
CN012	*1-564-011-11	PIN, CONNECTOR 12P	
CN013	*1-564-003-00	PIN, CONNECTOR 4P	
CN014	*1-564-008-00	PIN, CONNECTOR 9P	
CN015	*1-564-001-11	PIN, CONNECTOR 2P	
CN101	*1-564-015-00	PIN, CONNECTOR 5P	
CN102	*1-564-003-00	PIN, CONNECTOR 4P	
CN103	*1-564-013-00	PIN, CONNECTOR 3P	
CN104	*1-560-894-00	PIN, CONNECTOR 6P	
CN401	1-566-939-11	CONNECTOR, F.P.C 24P	
CN402	*1-564-011-11	PIN, CONNECTOR 12P (CHECK PIN)	
CN403	*1-564-001-11	PIN, CONNECTOR 2P	
CN404	*1-564-004-00	PIN, CONNECTOR 5P	
CN600	*1-564-003-00	PIN, CONNECTOR 4P	
CN601	*1-564-001-11	PIN, CONNECTOR 2P	
CN602	*1-564-001-11	PIN, CONNECTOR 2P	
CN603	*1-564-011-11	PIN, CONNECTOR 12P	

JACK

Ref.No	Part No.	Description	Remark
CNJ101	1-537-095-14	TERMINAL BOARD (CONTROL S)	

TRIMMER

Ref.No	Part No.	Description	Remark
CV001	1-141-227-00	CAP, CERAMIC TRIMMER (INT SG CLOCK)	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-907-19	DIODE FC52M-5	
D002	8-719-109-99	DIODE RD7.5ES-B	
D003	8-719-921-20	DIODE 1SS119	
D004	8-719-109-99	DIODE RD7.5ES-B	
D005	8-719-921-20	DIODE 1SS119	
D006	8-719-110-11	DIODE RD9.1ES-B	
D007	8-719-110-11	DIODE RD9.1ES-B	
D008	8-719-948-62	DIODE SLR-981A	
D101	8-719-921-20	DIODE 1SS119	
D102	8-719-921-20	DIODE 1SS119	
D103	8-719-921-20	DIODE 1SS119	
D104	8-719-921-20	DIODE 1SS119	
D401	8-719-921-20	DIODE 1SS119	
D402	8-719-921-20	DIODE 1SS119	
D403	8-719-104-26	DIODE 1S2837	
D404	8-719-921-20	DIODE 1SS119	
D405	8-719-921-20	DIODE 1SS119	
D406	8-719-119-70	DIODE RD2.7ES-L2	

When indicating parts by reference number, please include the board name.

LP-3

Ref.No	Part No.	Description	Remark
D408	8-719-104-26	DIODE 1S2837	
D409	8-719-104-22	DIODE 1SS123	
D410	8-719-921-20	DIODE 1SS119	
D411	8-719-921-20	DIODE 1SS119	
D601	8-719-119-70	DIODE RD2.7ES-L2	
D648	8-719-921-20	DIODE 1SS119	
D666	8-719-921-20	DIODE 1SS119	

FUSE

Ref.No	Part No.	Description	Remark
F001 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F002 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F003 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F004 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F005 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F006 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F007 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F008 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F009 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	
F010 ⚠.	1-576-026-11	FUSE, MICRO (F2A 125V)	

FILTER

Ref.No	Part No.	Description	Remark
FL001	1-421-927-21	FILTER, NOISE	
FL002	1-421-927-21	FILTER, NOISE	
FL101	1-236-262-11	FILTER, BAND PASS (7.5MHz)	
FL102	1-236-264-11	FILTER, LOW PASS	
FL103	1-415-515-11	DELAY LINE (200ns)	
FL104	1-236-263-11	FILTER, LOW PASS	
FL105	1-409-447-11	COIL, TRAP (4.43MHz)	
FL106	1-424-031-11	FILTER, NOISE	

IC

Ref.No	Part No.	Description	Remark
IC001	8-759-630-74	M50455-080FP	
IC002	8-759-700-07	IC NJM2903M	
IC003	8-759-902-88	IC SN74LS123NS	
IC004	8-759-205-65	IC TC4081BF	
IC005	8-759-207-28	IC TC9015P	
IC006	8-759-973-90	IC MB89795-107	
IC007	8-759-605-16	IC M51953BL	
IC008	8-759-937-21	IC CXD1078M	
IC009	8-759-700-90	IC NJM2901M	
IC010	8-759-962-08	IC BA6208	
IC011	8-759-971-70	IC MB674172U	
IC012	8-759-907-81	IC SN74LS221NS	
IC013	8-759-931-11	IC SN74LS373NS	
IC014	8-752-329-42	IC CXK38256-080P	
IC101	8-759-600-XX	IC M51481P	
IC102	8-752-321-89	IC CXL5003P	
IC103	8-759-204-96	IC TC74HC04F	
IC104	8-752-006-10	IC CX20061	
IC105	8-759-201-47	IC TA7357AP	
IC106	8-752-320-31	IC CXL1004P	
IC107	8-759-950-07	IC SN75107BN	
IC108	8-752-030-44	IC CXA1018S	

Ref.No	Part No.	Description	Remark
IC109	8-759-907-81	IC SN74LS221NS	
IC110	8-752-006-10	IC CX20061	
IC111	8-752-321-89	IC CXL5003P	
IC112	8-759-927-56	IC BA7021	
IC401	8-759-700-43	IC NJM4558M	
IC402	8-759-208-11	IC TC4053BFHB	
IC403	8-759-804-85	IC LA9200NM	
IC405	8-759-700-43	IC NJM4558M	
IC406	8-759-805-19	IC LA6500S-LR	
IC407	8-759-805-19	IC LA6500S-LR	
IC408	8-759-700-07	IC NJM2903M	
IC410	8-759-700-43	IC NJM4558M	
IC411	8-759-208-11	IC TC4053BFHB	
IC420	8-759-208-11	IC TC4053BFHB	
IC421	8-759-700-43	IC NJM4558M	
IC422	8-759-700-43	IC NJM4558M	
IC423	8-759-208-11	IC TC4053BFHB	
IC430	8-759-208-11	IC TC4053BFHB	
IC431	8-759-208-11	IC TC4053BFHB	
IC432	8-759-201-61	IC TC40H004F	
IC433	8-759-700-43	IC NJM4558M	
IC550	8-759-103-79	IC UPC358G2	
IC552	8-759-700-43	IC NJM4558M	
IC590	8-759-923-61	IC IR3C02AN	
IC600	8-759-700-43	IC NJM4558M	
IC601	8-759-932-54	IC BU4066BF	
IC602	8-759-208-11	IC TC4053BFHB	
IC603	8-759-805-19	IC LA6500S-LR	
IC604	8-759-103-94	IC UPC324G2	
IC605	8-759-208-11	IC TC4053BFHB	
IC640	8-759-103-94	IC UPC324G2	
IC641	8-759-805-19	IC LA6500S-LR	
IC642	8-759-208-11	IC TC4053BFHB	

COIL

Ref.No	Part No.	Description	Remark
L001	1-410-511-11	INDUCTOR 15UH	
L002	1-410-334-11	INDUCTOR 100UH	
L003	1-408-409-00	INDUCTOR 10UH	
L004	1-408-614-41	INDUCTOR 82UH	
L005	1-424-033-21	FILTER, NOISE	
L101	1-410-334-11	INDUCTOR 100UH	
L103	1-410-334-11	INDUCTOR 100UH	
L104	1-410-331-11	INDUCTOR 33UH	
L105	1-410-334-11	INDUCTOR 100UH	
L108	1-410-333-31	INDUCTOR 68UH	
L109	1-410-336-11	INDUCTOR 220UH	
L111	1-408-409-00	INDUCTOR 10UH	
L113	1-410-362-31	INDUCTOR 18UH	
L116	1-410-334-11	INDUCTOR 100UH	
L117	1-408-409-00	INDUCTOR 10UH	
L118	1-410-334-11	INDUCTOR 100UH	
L123	1-410-329-31	INDUCTOR 15UH	
L124	1-408-417-00	INDUCTOR 47UH	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
L125	1-408-409-00	INDUCTOR 10UH	
L126	1-410-331-11	INDUCTOR 33UH	
L127	1-408-409-00	INDUCTOR 10UH	
L128	1-410-333-31	INDUCTOR 68UH	
L129	1-408-417-00	INDUCTOR 47UH	
L130	1-408-417-00	INDUCTOR 47UH	
L132	1-410-336-11	INDUCTOR 220UH	
L133	1-410-334-11	INDUCTOR 100UH	
L401	1-408-417-00	INDUCTOR 47UH	
L402	1-408-417-00	INDUCTOR 47UH	
L403	1-408-409-00	INDUCTOR 10UH	
L405	1-408-417-00	INDUCTOR 47UH	
		TRANSISTOR	
Q001	8-729-901-01	TRANSISTOR DTC144EK	
Q002	8-729-102-62	TRANSISTOR 2SC1623	
Q003	8-729-901-01	TRANSISTOR DTC144EK	
Q004	8-729-901-01	TRANSISTOR DTC144EK	
Q005	8-729-901-01	TRANSISTOR DTC144EK	
Q006	8-729-901-01	TRANSISTOR DTC144EK	
Q007	8-729-901-06	TRANSISTOR DTA144EK	
Q008	8-729-102-83	TRANSISTOR 2SB624-BV4	
Q009	8-729-901-01	TRANSISTOR DTC144EK	
Q010	8-729-901-01	TRANSISTOR DTC144EK	
Q011	8-729-901-01	TRANSISTOR DTC144EK	
Q012	8-729-901-46	TRANSISTOR DTA114YK	
Q013	8-729-901-46	TRANSISTOR DTA114YK	
Q101	8-729-208-55	TRANSISTOR 2SC2878	
Q102	8-729-102-08	TRANSISTOR 2SC2223-F14	
Q103	8-729-102-62	TRANSISTOR 2SC1623	
Q104	8-729-102-62	TRANSISTOR 2SC1623	
Q105	8-729-102-62	TRANSISTOR 2SC1623	
Q106	8-729-102-62	TRANSISTOR 2SC1623	
Q107	8-729-102-62	TRANSISTOR 2SC1623	
Q108	8-729-102-62	TRANSISTOR 2SC1623	
Q109	8-729-102-62	TRANSISTOR 2SC1623	
Q110	8-729-102-62	TRANSISTOR 2SC1623	
Q111	8-729-102-62	TRANSISTOR 2SC1623	
Q112	8-729-102-72	TRANSISTOR 2SA812	
Q113	8-729-102-62	TRANSISTOR 2SC1623	
Q114	8-729-901-01	TRANSISTOR DTC144EK	
Q115	8-729-102-62	TRANSISTOR 2SC1623	
Q116	8-729-102-62	TRANSISTOR 2SC1623	
Q117	8-729-102-62	TRANSISTOR 2SC1623	
Q118	8-729-102-62	TRANSISTOR 2SC1623	
Q119	8-729-102-62	TRANSISTOR 2SC1623	
Q120	8-729-102-72	TRANSISTOR 2SA812	
Q121	8-729-103-19	TRANSISTOR 2SA1206-K1	
Q122	8-729-190-12	TRANSISTOR 2SC2901	
Q123	8-729-102-62	TRANSISTOR 2SC1623	
Q124	8-729-102-62	TRANSISTOR 2SC1623	
Q125	8-729-102-62	TRANSISTOR 2SC1623	
Q126	8-729-102-62	TRANSISTOR 2SC1623	
Q127	8-729-102-72	TRANSISTOR 2SA812	
Q128	8-729-102-62	TRANSISTOR 2SC1623	
Q129	8-729-202-23	TRANSISTOR 2SK209G	
Q130	8-729-102-62	TRANSISTOR 2SC1623	
Q131	8-729-102-62	TRANSISTOR 2SC1623	
Q132	8-729-102-62	TRANSISTOR 2SC1623	
Q133	8-729-903-10	TRANSISTOR FMW1	
Q134	8-729-903-10	TRANSISTOR FMW1	
Q135	8-729-102-62	TRANSISTOR 2SC1623	
Q136	8-729-102-62	TRANSISTOR 2SC1623	
Q137	8-729-102-62	TRANSISTOR 2SC1623	
Q138	8-729-901-04	TRANSISTOR DTA114EK	
Q139	8-729-901-01	TRANSISTOR DTC144EK	
Q140	8-729-102-62	TRANSISTOR 2SC1623	
Q141	8-729-102-62	TRANSISTOR 2SC1623	
Q142	8-729-102-62	TRANSISTOR 2SC1623	
Q143	8-729-102-62	TRANSISTOR 2SC1623	
Q144	8-729-901-01	TRANSISTOR DTC144EK	
Q145	8-729-901-06	TRANSISTOR DTA144EK	
Q146	8-729-901-01	TRANSISTOR DTC144EK	
Q147	8-729-102-72	TRANSISTOR 2SA812	
Q148	8-729-102-62	TRANSISTOR 2SC1623	
Q149	8-729-102-62	TRANSISTOR 2SC1623	
Q150	8-729-102-62	TRANSISTOR 2SC1623	
Q151	8-729-102-62	TRANSISTOR 2SC1623	
Q152	8-729-102-62	TRANSISTOR 2SC1623	
Q153	8-729-102-62	TRANSISTOR 2SC1623	
Q154	8-729-102-72	TRANSISTOR 2SA812	
Q155	8-729-102-62	TRANSISTOR 2SC1623	
Q156	8-729-102-62	TRANSISTOR 2SC1623	
Q157	8-729-102-62	TRANSISTOR 2SC1623	
Q158	8-729-102-62	TRANSISTOR 2SC1623	
Q159	8-729-102-62	TRANSISTOR 2SC1623	
Q160	8-729-102-62	TRANSISTOR 2SC1623	
Q161	8-729-901-05	TRANSISTOR DTA124EK	
Q162	8-729-901-05	TRANSISTOR DTA124EK	
Q163	8-729-102-62	TRANSISTOR 2SC1623	
Q164	8-729-900-53	TRANSISTOR DTC114EK	
Q401	8-729-901-01	TRANSISTOR DTC144EK	
Q403	8-729-901-06	TRANSISTOR DTA144EK	
Q404	8-729-102-62	TRANSISTOR 2SC1623	
Q405	8-729-102-62	TRANSISTOR 2SC1623	
Q406	8-729-180-92	TRANSISTOR 2SD809-K	
Q407	8-729-901-01	TRANSISTOR DTC144EK	
Q408	8-729-901-06	TRANSISTOR DTA144EK	
Q409	8-729-901-06	TRANSISTOR DTA144EK	
Q410	8-729-102-72	TRANSISTOR 2SA812	
Q411	8-729-102-62	TRANSISTOR 2SC1623	
Q414	8-729-901-01	TRANSISTOR DTC144EK	
Q415	8-729-173-13	TRANSISTOR 2SB731	
Q416	8-729-901-06	TRANSISTOR DTA144EK	
Q417	8-729-102-62	TRANSISTOR 2SC1623	
Q418	8-729-102-62	TRANSISTOR 2SC1623	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
Q421	8-729-901-01	TRANSISTOR DTC144EK				
Q430	8-729-102-62	TRANSISTOR 2SC1623				
Q431	8-729-102-72	TRANSISTOR 2SA812				
Q432	8-729-102-73	TRANSISTOR 2SA812				
Q433	8-729-102-63	TRANSISTOR 2SC1623-L7				
Q434	8-729-903-10	TRANSISTOR FMW1				
Q602	8-729-901-06	TRANSISTOR DTA144EK				
Q603	8-729-901-01	TRANSISTOR DTC144EK				
Q604	8-729-901-06	TRANSISTOR DTA144EK				
Q640	8-729-901-06	TRANSISTOR DTA144EK				
Q641	8-729-901-01	TRANSISTOR DTC144EK				
Q642	8-729-901-06	TRANSISTOR DTA144EK				
Q643	8-729-901-01	TRANSISTOR DTC144EK				
Q644	8-729-901-06	TRANSISTOR DTA144EK				
Q645	8-729-199-92	TRANSISTOR 2SD999				
Q646	8-729-199-92	TRANSISTOR 2SD999				
Q648	8-729-901-46	TRANSISTOR DTA114YK				
Q649	8-729-901-01	TRANSISTOR DTC144EK				
Q666	8-729-901-01	TRANSISTOR DTC144EK				
		RESISTOR				
R001	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R002	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R003	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R004	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R005	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R006	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R007	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R008	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R009	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R010	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R011	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R012	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R013	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R014	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R015	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R016	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R017	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R018	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R019	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R020	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R021	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R022	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R023	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R024	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R025	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R026	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R027	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R028	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R029	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R030	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R031	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R032	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R033	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R034	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R035	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R036	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R037	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R038	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R039	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R040	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R041	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R042	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R043	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R044	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R045	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R046	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R047	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R048	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R049	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R050	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R051	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R052	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R053	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R054	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R055	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R056	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R057	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R058	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R059	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R060	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R061	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R062	1-247-733-11	CARBON	33	5%	1/2W	
R063	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R064	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R065	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R066	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R067	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R068	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R069	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R070	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R071	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R072	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R073	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R074	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R075	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R076	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R077	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R078	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R079	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R080	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R081	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R082	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R083	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R084	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R085	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R086	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R087	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R088	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R089	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R090	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R091	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R092	1-216-596-11	METAL GLAZE	2.7K	1%	1/10W	
R093	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R094	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R095	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R096	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R097	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R098	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R099	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R101	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R102	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R103	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R104	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R105	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R106	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R107	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R108	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R109	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R110	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R111	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R112	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R113	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R114	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R115	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R116	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R117	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R118	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R119	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R120	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R121	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R122	1-249-409-11	CARBON	220	5%	1/4W	
R123	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R124	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R125	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R126	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R127	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R128	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R129	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R130	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R131	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R132	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R133	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R135	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R136	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R137	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R138	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R139	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R140	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R141	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R142	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R143	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R144	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R145	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R146	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R147	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R148	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R149	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R150	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R151	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R152	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R153	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R154	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R155	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R156	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R157	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R158	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R160	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R161	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R162	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R163	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R164	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R165	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R166	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R167	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R168	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R169	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R170	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R171	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R172	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R173	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R174	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R175	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R176	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R177	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R178	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R179	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R180	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R181	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R182	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R183	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R184	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R185	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R186	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R187	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R188	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R191	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R192	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R193	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R194	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R195	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R196	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R197	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R198	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R199	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R200	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R201	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R202	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R203	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R204	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R205	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R206	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R207	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R208	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R209	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R210	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R211	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R212	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R213	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R214	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R215	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R216	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R217	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R218	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R219	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R220	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R221	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R222	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R223	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R224	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R225	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R226	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R227	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R228	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R229	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R230	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R231	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R232	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R233	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R234	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R235	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R236	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R238	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R239	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R240	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R241	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R242	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R243	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R244	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R245	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R246	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R247	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R248	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R249	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R250	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R251	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R252	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R253	1-249-404-00	CARBON	82	5%	1/4W	
R254	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R255	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R256	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R257	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R258	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R259	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R260	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R261	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R262	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R263	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R264	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R265	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R266	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R267	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R268	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R269	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R270	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R271	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R272	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R273	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R275	1-249-409-11	CARBON	220	5%	1/4W	
R276	1-249-409-11	CARBON	220	5%	1/4W	
R277	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R278	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R279	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R280	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R281	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R282	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R283	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R284	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R285	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R286	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R287	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R288	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R289	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R290	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R291	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R292	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R293	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R294	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R295	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R296	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R297	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R298	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R299	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R300	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R301	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R302	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R303	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R304	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R305	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R306	1-215-475-00	METAL	180K	1%	1/6W	
R307	1-215-481-00	METAL	330K	1%	1/6W	
R308	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R309	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R310	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R311	1-249-416-11	CARBON	820	5%	1/4W	
R401	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R402	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R403	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R404	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R405	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R406	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R407	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R408	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R409	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R410	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R411	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R412	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R413	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R414	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R415	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R416	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R417	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R418	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R420	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R421	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R422	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R423	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R424	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R425	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R426	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R427	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R429	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R430	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R431	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R432	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R433	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R434	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R435	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R436	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R437	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R438	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R439	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R440	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R441	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R442	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R443	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R444	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R445	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R446	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R447	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R448	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R449	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R450	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R451	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R452	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R453 ⚠.	1-216-373-11	METAL OXIDE	2.2	5%	2W	F
R454	1-249-405-11	CARBON	100	5%	1/4W	
R455	1-249-405-11	CARBON	100	5%	1/4W	
R456	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R457	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R458	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R459	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R460	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R461	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R462	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R463	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R464	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R465	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R466	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R467	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R468	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R469	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R470	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R471	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R472	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R473	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R475	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R476	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R477	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R478	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R479	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R480	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R481	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R482	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R483 ⚠.	1-216-373-11	METAL OXIDE	2.2	5%	2W	F
R484	1-216-308-00	METAL GLAZE	4.7	5%	1/10W	
R485	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R486	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R487	1-216-238-00	METAL GLAZE	47K	5%	1/8W	
R488	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R490	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R491	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R492	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R493	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R494	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R495	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R496	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R497	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R498	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R499	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R500	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R503	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R507	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ref.No	Part No.	Description				Remark
R508	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R509	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R510	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R511	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R512	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R513	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R514	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R519	1-216-308-00	METAL GLAZE	4.7	5%	1/10W	
R520	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R521	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R522	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R523	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R524	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R525	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R526	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R527	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R528	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R529	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R530	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R531	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R532	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R533	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R534	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R535	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R536	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R537	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R538	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R539	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R540	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R541	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R542	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R543	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R544	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R545	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R546	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R547	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R548	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R549	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R550	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R551	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R552	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R554	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R556	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R557	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R558	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R563	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R565	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R566	1-249-405-11	CARBON	100	5%	1/4W	
R573	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R574	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R576	1-216-039-00	METAL GLAZE	390	5%	1/10W	

Ref.No	Part No.	Description				Remark
R578	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R592 ⚠	1-247-731-11	CARBON	22	5%	1/2W	F
R599	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R600	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R601	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R602	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R603	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R604	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R605	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R606	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R607	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R608	1-216-111-00	METAL GLAZE	390K	5%	1/10W	
R609	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R610	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R611	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R612	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R613	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R614	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R615	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R617	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R618	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R619	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R620	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R621	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R622	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R623	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R624	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R625	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R626	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R627	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R628	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R629	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R630	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R638	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R639	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R640	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R641	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R642	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R643	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R644	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R645	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R646	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R647	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R648	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R649	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R650	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R651 ⚠	1-215-884-11	METAL OXIDE	47	5%	2W	F
R652 ⚠	1-215-885-00	METAL OXIDE	68	5%	2W	F
R655	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R656	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R657	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R658	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R659	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description				Remark
R660	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R661	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R662	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R664	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R665	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R666	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R667	1-216-308-00	METAL GLAZE	4.7	5%	1/10W	
R670	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R676	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R678	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R680	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R681	1-216-308-00	METAL GLAZE	4.7	5%	1/10W	
R682	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R683	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R684	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R685	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R686	1-216-111-00	METAL GLAZE	390K	5%	1/10W	
R692	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R694	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R699	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R900	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R901	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R902	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R903	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R904	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R905	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R906	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R907	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R908	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R909	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R910	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R911	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R912	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R913	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R914	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R915	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R916	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R917	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R918 ⚠	1-212-954-11	FUSIBLE	6.8	5%	1/2W	F
R919	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R920	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R921	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R922	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R923	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R924	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-228-989-00	RES, ADJ, CARBON 470 (RF LEVEL)	
RV102	1-228-993-00	RES, ADJ, CARBON 4.7K (DOC ADJ 1)	
RV103	1-228-991-00	RES, ADJ, CARBON 2.2K (DOC ADJ 2)	
RV104	1-228-993-00	RES, ADJ, CARBON 4.7K (CCD BIAS)	
RV105	1-228-991-00	RES, ADJ, CARBON 2.2K (TBC CLOCK)	
RV106	1-228-990-00	RES, ADJ, CARBON 1K (VIDEO OUTPUT LEVEL)	
RV107	1-228-995-00	RES, ADJ, CARBON 22K (TBC IF ADJ)	
RV108	1-228-993-00	RES, ADJ, CARBON 4.7K(CF CHROMA LEVEL 1)	
RV109	1-228-989-00	RES, ADJ, CARBON 470 (CF CHROMA LEVEL 2)	
RV110	1-228-989-00	RES, ADJ, CARBON 470 (CF Y LEVEL)	
RV401	1-228-997-00	RES, ADJ, CARBON 100K (CD TRKG OFFSET)	
RV403	1-228-996-00	RES, ADJ, CARBON 47K (CD FOCUS OFFSET)	
RV404	1-228-996-00	RES, ADJ, CARBON 47K (LD FOCUS OFFSET)	
RV405	1-228-997-00	RES, ADJ, CARBON 100K (LD TRKG OFFSET)	
RV406	1-228-994-00	RES, ADJ, CARBON 10K (LD FOCUS GAIN)	
RV407	1-228-996-00	RES, ADJ, CARBON 47K (LD TRKG GAIN)	
RV408	1-228-995-00	RES, ADJ, CARBON 22K (LD TRKG JUMP(STILL))	
RV409	1-228-996-00	RES, ADJ, CARBON 47K (LD TRKG JUMP(+X3))	
RV410	1-228-996-00	RES, ADJ, CARBON 47K (CD TRKG JUMP)	
RV411	1-228-997-00	RES, ADJ, CARBON 100K (CD TRKG GAIN)	
RV552	1-228-995-00	RES, ADJ, CARBON 22K (LD SKEW)	

CRYSTAL

Ref.No	Part No.	Description
X001	1-567-733-11	VIBRATOR, CRYSTAL (17.734475MHz)
X002	1-567-900-11	VIBRATOR, CRYSTAL (14.31MHz)
X101	1-567-652-11	VIBRATOR, CRYSTAL (13.3MHz)

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*A-6421-230-A DS-27 BOARD, COMPLETE (Ref.No. 3,000 Series)
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7-682-147-15 SCREW, TR
*3-309-144-01 HEAT SINK

CAPACITOR

Ref.No	Part No.	Description			
C801	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V
C813	1-130-491-00	MYLAR	0.047MF	5%	50V
C814	1-130-491-00	MYLAR	0.047MF	5%	50V
C815	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C816	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C818	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C819	1-123-661-00	ELECT	100MF	20%	6.3V
C820	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C821	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C822	1-126-163-11	ELECT	4.7MF	20%	50V
C823	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C824	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C825	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C826	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C827	1-123-661-00	ELECT	100MF	20%	6.3V
C828	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C829	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C830	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C831	1-123-661-00	ELECT	100MF	20%	6.3V
C832	1-126-163-11	ELECT	4.7MF	20%	50V
C833	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C834	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C835	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C836	1-130-495-00	MYLAR	0.1MF	5%	50V

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

DS-27

Ref.No	Part No.	Description	Remark
C837	1-130-495-00	MYLAR 0.1MF 5% 50V	
C838	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C839	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C840	1-124-277-11	ELECT 4.7MF 20% 35V	
C841	1-124-499-11	ELECT 1MF 20% 50V	
C842	1-124-270-11	ELECT 0.47MF 20% 50V	
C843	1-163-106-00	CERAMIC CHIP 36PF 5% 50V	
C844	1-163-106-00	CERAMIC CHIP 36PF 5% 50V	
C845	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C846	1-123-661-00	ELECT 100MF 20% 6.3V	
C848	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C849	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C850	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C851	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C852	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C853	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C858	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C859	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C860	1-136-250-11	FILM 0.001MF 3% 100V	
C861	1-136-250-11	FILM 0.001MF 3% 100V	
C862	1-130-893-00	FILM 0.027MF 3% 100V	
C863	1-130-893-00	FILM 0.027MF 3% 100V	
C864	1-123-332-00	ELECT 47MF 20% 25V	
C865	1-123-332-00	ELECT 47MF 20% 25V	
C866	1-123-332-00	ELECT 47MF 20% 25V	
C867	1-123-332-00	ELECT 47MF 20% 25V	
C868	1-123-332-00	ELECT 47MF 20% 25V	
C869	1-123-332-00	ELECT 47MF 20% 25V	
C870	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C871	1-136-250-11	FILM 0.001MF 3% 100V	
C872	1-136-250-11	FILM 0.001MF 3% 100V	
C873	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C874	1-136-250-11	FILM 0.001MF 3% 100V	
C875	1-136-250-11	FILM 0.001MF 3% 100V	
C876	1-123-321-00	ELECT 220MF 20% 16V	
C877	1-123-321-00	ELECT 220MF 20% 16V	
C878	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C879	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C880	1-126-029-11	ELECT 3300MF 20% 25V	
C881	1-126-029-11	ELECT 3300MF 20% 25V	
C882	1-126-029-11	ELECT 3300MF 20% 25V	
C883	1-126-029-11	ELECT 3300MF 20% 25V	
C884	1-124-360-00	ELECT 1000MF 20% 16V	
C885	1-124-360-00	ELECT 1000MF 20% 16V	
C886	1-124-559-51	ELECT 1000MF 20% 10V	
C887	1-124-559-51	ELECT 1000MF 20% 10V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN801	*1-560-891-00	PIN, CONNECTOR 3P	
CN802	*1-564-005-00	PIN, CONNECTOR 6P	
CN803	*1-564-001-11	PIN, CONNECTOR 2P	
CN804	*1-564-008-00	PIN, CONNECTOR 9P	
CN805	*1-564-011-11	PIN, CONNECTOR 12P	
CN806	*1-564-011-11	PIN, CONNECTOR 12P	
CN807	*1-560-894-00	PIN, CONNECTOR 6P	
CN808	*1-564-002-00	PIN, CONNECTOR 3P	
CN809	*1-564-005-00	PIN, CONNECTOR 6P	
CN810	*1-564-002-00	PIN, CONNECTOR 3P	
CN811	*1-564-002-00	PIN, CONNECTOR 3P	

DIODE

Ref.No	Part No.	Description	Remark
D801	8-719-948-39	DIODE SVC211SP-CD	
D802	8-719-104-26	DIODE 1S2837	
D803	8-719-104-26	DIODE 1S2837	
D804	8-719-104-26	DIODE 1S2837	
D805	8-719-104-26	DIODE 1S2837	
D806	8-719-104-26	DIODE 1S2837	
D807	8-719-104-26	DIODE 1S2837	
D808	8-719-948-39	DIODE SVC211SP-CD	
D809	8-719-200-89	DIODE 31DF2	
D810	8-719-200-89	DIODE 31DF2	
D811	8-719-200-89	DIODE 31DF2	
D812	8-719-200-89	DIODE 31DF2	
D813	8-719-921-20	DIODE 1SS119	

FILTER

Ref.No	Part No.	Description	Remark
FL801	1-424-031-11	FILTER, NOISE	
FL802	1-424-031-11	FILTER, NOISE	
FL803	1-424-031-11	FILTER, NOISE	
FL804	1-424-031-11	FILTER, NOISE	
FL805	1-424-031-11	FILTER, NOISE	
FL806	1-424-031-11	FILTER, NOISE	
FL807	1-424-031-11	FILTER, NOISE	
FL808	1-424-031-11	FILTER, NOISE	
FL809	1-424-031-11	FILTER, NOISE	

IC

Ref.No	Part No.	Description	Remark
IC803	8-759-103-09	IC UPC4082G2	
IC804	8-759-201-61	IC TC40H004F	
IC805	8-759-804-84	IC LC7863A	
IC806	8-759-804-88	IC LC3517AML-15	
IC807	8-759-946-27	IC CXD1316DM	
IC808	8-759-103-09	IC UPC4082G2	
IC809	8-759-103-09	IC UPC4082G2	
IC810	8-759-204-94	IC TC74HC00F	
IC811	8-759-204-98	IC TC74HC08F	
IC813	8-759-938-46	IC PCM56P-JS	
IC814	8-759-938-46	IC PCM56P-JS	
IC815	8-759-900-72	IC NE5532P	
IC816	8-759-900-72	IC NE5532P	
IC817	8-759-900-72	IC NE5532P	
IC818	8-759-900-72	IC NE5532P	
IC819	8-759-708-12	IC UPC78L12	
IC820	8-759-700-69	IC NJM79L12A	
IC821	8-759-604-33	IC M5F7812	
IC822	8-759-604-29	IC M5F7805	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
IC823	8-759-604-51	IC M5F7912				
IC824	8-759-604-47	IC M5F7905				

COIL

Ref.No	Part No.	Description				Remark
L806	1-410-339-11	COIL, CHOKE 10UH				
L807	1-410-339-11	COIL, CHOKE 10UH				
L810	1-410-339-11	COIL, CHOKE 10UH				
L812	1-410-339-11	COIL, CHOKE 10UH				

VARIABLE COIL

Ref.No	Part No.	Description				Remark
LV801	1-426-330-11	COIL, RF (FREE RUN FREQ)				

TRANSISTOR

Ref.No	Part No.	Description				Remark
Q801	8-729-901-04	TRANSISTOR DTA114EK				
Q802	8-729-901-01	TRANSISTOR DTC144EK				
Q803	8-729-901-01	TRANSISTOR DTC144EK				
Q804	8-729-901-06	TRANSISTOR DTA144EK				
Q805	8-729-202-23	TRANSISTOR 2SK209G				
Q806	8-729-901-06	TRANSISTOR DTA144EK				
Q807	8-729-901-01	TRANSISTOR DTC144EK				
Q808	8-729-901-06	TRANSISTOR DTA144EK				
Q809	8-729-901-01	TRANSISTOR DTC144EK				
Q810	8-729-203-24	TRANSISTOR 2SC3326N				
Q811	8-729-203-24	TRANSISTOR 2SC3326N				
Q812	8-729-203-24	TRANSISTOR 2SC3326N				
Q813	8-729-203-24	TRANSISTOR 2SC3326N				
Q814	8-729-203-24	TRANSISTOR 2SC3326N				
Q815	8-729-203-24	TRANSISTOR 2SC3326N				
Q816	8-729-203-24	TRANSISTOR 2SC3326N				
Q817	8-729-203-24	TRANSISTOR 2SC3326N				
Q818	8-729-203-24	TRANSISTOR 2SC3326N				
Q819	8-729-203-24	TRANSISTOR 2SC3326N				
Q820	8-729-203-24	TRANSISTOR 2SC3326N				
Q821	8-729-203-24	TRANSISTOR 2SC3326N				
Q822	8-729-203-24	TRANSISTOR 2SC3326N				
Q823	8-729-203-24	TRANSISTOR 2SC3326N				
Q824	8-729-177-33	TRANSISTOR 2SD773-4				
Q825	8-729-113-33	TRANSISTOR 2SB733-4				
Q826	8-729-901-06	TRANSISTOR DTA144EK				
Q827	8-729-901-01	TRANSISTOR DTC144EK				

RESISTOR

Ref.No	Part No.	Description				Remark
R801	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R802	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R817	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R818	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R819	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R820	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R821	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R822	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R823	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R824	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R825	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R826	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R827	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R828	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R829	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R830	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R831	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R832	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R833	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R834	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R835	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R836	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R837	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W	
R838	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R839	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R840	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R841	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R842	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R843	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R844	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R845	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R846	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R847	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R848	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R849	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R850	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R851	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R852	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R853	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R854	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R855	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R856	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R857	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R858	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R859	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R860	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R861	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R862	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R863	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R864	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R865	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R866	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R867	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R868	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R869	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R870	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R871	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R872	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R873	1-247-721-11	CARBON	4.7K	1%	1/4W	
R874	1-247-721-11	CARBON	4.7K	1%	1/4W	
R875	1-249-805-91	CARBON	1.3K	1%	1/2W	
R876	1-249-805-91	CARBON	1.3K	1%	1/2W	
R877	1-249-917-91	CARBON	560	1%	1/4W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R878	1-249-917-91	CARBON	560	1%	1/4W	
R879	1-246-545-00	CARBON	1M	1%	1/4W	
R880	1-246-545-00	CARBON	1M	1%	1/4W	
R881	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R882	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R883	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R884	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R885	1-247-747-11	CARBON	470	5%	1/2W	
R886	1-247-747-11	CARBON	470	5%	1/2W	
R887	1-247-747-11	CARBON	470	5%	1/2W	
R888	1-247-747-11	CARBON	470	5%	1/2W	
R889	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R890	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R891	1-247-747-11	CARBON	470	5%	1/2W	
R892	1-247-747-11	CARBON	470	5%	1/2W	
R893	1-247-747-11	CARBON	470	5%	1/2W	
R894	1-247-747-11	CARBON	470	5%	1/2W	
R895	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R896	1-247-891-00	CARBON	330K	5%	1/4W	
R897	1-247-891-00	CARBON	330K	5%	1/4W	
R898	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R899	1-247-891-00	CARBON	330K	5%	1/4W	
R900	1-247-891-00	CARBON	330K	5%	1/4W	
R901	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R902	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R903	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R904	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R905	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R906	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R907	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R908	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R909	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R910	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R911	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R912	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R913	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R914	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R915	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R916	1-249-661-11	CARBON	330	5%	1/2W	
R917	1-249-661-11	CARBON	330	5%	1/2W	
R918	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R919	1-249-661-11	CARBON	330	5%	1/2W	
R920	1-249-661-11	CARBON	330	5%	1/2W	
R921	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R922	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R923	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R924	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R925	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R926	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R927 ⚠.	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R928 ⚠.	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R929	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R930	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R931	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R932	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R933	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R934	1-247-704-11	CARBON	220	5%	1/4W	
R935	1-247-704-11	CARBON	220	5%	1/4W	
R936	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R937	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R938	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R939	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R940	1-249-465-11	CARBON	47K	1%	1/4W	
R941	1-249-465-11	CARBON	47K	1%	1/4W	

VARIABLE RESISTOR

RV801	1-226-773-11	RES, ADJ, METAL GLAZE 22K (LINE OUT LEVEL 1L)
RV802	1-226-773-11	RES, ADJ, METAL GLAZE 22K (LINE OUT LEVEL 1R)

RELAY

RY801	1-515-622-11	RELAY

CRYSTAL

X801	1-577-210-11	VIBRATOR, CRYSTAL (VARIABLE)

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*A-6421-231-A FP-142 BOARD, COMPLETE (Ref.No.
*********************** 4,000 Series)

1-627-193-11 FP-143 BOARD
*3-720-353-01 SPACER, LED
3-721-216-01 REFLECTOR (A)
*3-725-531-01 HOLDER (A)
*3-725-532-01 HOLDER (B)

CAPACITOR

C001	1-126-233-11	ELECT	22MF	20%	25V
C002	1-161-494-00	CERAMIC	0.022MF		25V
C003	1-126-233-11	ELECT	22MF	20%	25V
C004	1-126-233-11	ELECT	22MF	20%	25V
C005	1-126-233-11	ELECT	22MF	20%	25V
C006	1-161-494-00	CERAMIC	0.022MF		25V
C007	1-161-494-00	CERAMIC	0.022MF		25V

DIODE

D001	8-719-304-62	DIODE SEL3413E-D
D002	8-719-908-50	DIODE PY5504S-1
D003	8-719-908-55	DIODE SLR-54YC3
D004	8-719-303-79	DIODE SEL4414G-D
D005	8-719-303-79	DIODE SEL4414G-D
D006	8-719-301-48	DIODE SEL2413E-D
D010	8-719-800-56	DIODE TLUR164
D011	8-719-800-56	DIODE TLUR164

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description				Remark

INDICATOR TUBE

F001	1-519-434-11	INDICATOR TUBE, FLUORESCENT				

IC

IC001	8-741-138-78	IC BX-1453				
IC002	8-752-805-72	IC CXP5016H-DCX224				

COIL

L001	1-410-521-11	INDUCTOR	100UH			
L002	1-410-521-11	INDUCTOR	100UH			

TRANSISTOR

Q001	8-729-900-61	TRANSISTOR DTA114ES				
Q002	8-729-900-61	TRANSISTOR DTA114ES				
Q003	8-729-900-61	TRANSISTOR DTA114ES				
Q004	8-729-900-61	TRANSISTOR DTA114ES				
Q005	8-729-900-61	TRANSISTOR DTA114ES				
Q006	8-729-900-61	TRANSISTOR DTA114ES				
Q010	8-729-178-54	TRANSISTOR 2SC2785				

RESISTOR

R002	1-249-409-11	CARBON	220	5%	1/4W	
R003	1-249-409-11	CARBON	220	5%	1/4W	
R004	1-249-409-11	CARBON	220	5%	1/4W	
R005	1-249-409-11	CARBON	220	5%	1/4W	
R006	1-249-409-11	CARBON	220	5%	1/4W	
R007	1-249-437-11	CARBON	47K	5%	1/4W	
R011	1-249-409-11	CARBON	220	5%	1/4W	
R012	1-249-409-11	CARBON	220	5%	1/4W	
R013	1-249-409-11	CARBON	220	5%	1/4W	
R015	1-249-417-11	CARBON	1K	5%	1/4W	
R016	1-247-903-00	CARBON	1M	5%	1/4W	
R017	1-249-425-11	CARBON	4.7K	5%	1/4W	
R018	1-249-437-11	CARBON	47K	5%	1/4W	
R019	1-249-437-11	CARBON	47K	5%	1/4W	
R020	1-249-437-11	CARBON	47K	5%	1/4W	
R021	1-249-437-11	CARBON	47K	5%	1/4W	
R022	1-249-425-11	CARBON	4.7K	5%	1/4W	
R023	1-249-425-11	CARBON	4.7K	5%	1/4W	
R024	1-249-425-11	CARBON	4.7K	5%	1/4W	
R025	1-249-425-11	CARBON	4.7K	5%	1/4W	
R026	1-249-417-11	CARBON	1K	5%	1/4W	
R027	1-249-409-11	CARBON	220	5%	1/4W	
R028	1-249-409-11	CARBON	220	5%	1/4W	
R029	1-249-417-11	CARBON	1K	5%	1/4W	
R030	1-249-417-11	CARBON	1K	5%	1/4W	
R031	1-249-441-11	CARBON	100K	5%	1/4W	
R032	1-249-441-11	CARBON	100K	5%	1/4W	
R033	1-249-425-11	CARBON	4.7K	5%	1/4W	

Ref.No	Part No.	Description				Remark

SWITCH

S001	1-554-303-21	SWITCH, KEY BOARD (OPEN)				
S002	1-554-303-21	SWITCH, KEY BOARD (CLOSE)				
S005	1-554-303-21	SWITCH, KEY BOARD (POWER)				
S006	1-554-303-21	SWITCH, KEY BOARD (STOP)				
S007	1-554-303-21	SWITCH, KEY BOARD (PLAY)				
S008	1-554-303-21	SWITCH, KEY BOARD (PAUSE)				
S009	1-554-303-21	SWITCH, KEY BOARD (F. AMS)				
S010	1-554-303-21	SWITCH, KEY BOARD (B. AMS)				
S011	1-554-303-21	SWITCH, KEY BOARD (F. SCAN)				
S012	1-554-303-21	SWITCH, KEY BOARD (B. SCAN)				
S016	1-554-303-21	SWITCH, KEY BOARD (CDV DIRECT)				

CRYSTAL

X001	1-567-152-00	OSCILLATOR, CERAMIC (4MHz)				

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*A-6421-232-A AF-49 BOARD, COMPLETE (Ref.No. 3,000 Series)
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CAPACITOR

C601	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C602	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C603	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C604	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C605	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C606	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C607	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C608	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V	
C609	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V	
C610	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C611	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C612	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	
C613	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V	
C614	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V	
C615	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C616	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C617	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C618	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C619	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C620	1-124-767-00	ELECT	2.2MF	20%	50V	
C621	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C622	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C623	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C624	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C625	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C626	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C627	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C628	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C629	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C630	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	

When indicating parts by reference number, please include the board name.

AF-49

Ref.No	Part No.	Description			Remark
C631	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C632	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C633	1-126-176-11	ELECT	220MF	20%	10V
C634	1-126-176-11	ELECT	220MF	20%	10V
C635	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C636	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C637	1-124-927-11	ELECT	4.7MF	20%	50V
C638	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C639	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C640	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C641	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C642	1-163-016-00	CERAMIC CHIP	0.0039MF	10%	50V
C643	1-163-016-00	CERAMIC CHIP	0.0039MF	10%	50V
C644	1-163-016-00	CERAMIC CHIP	0.0039MF	10%	50V
C645	1-163-016-00	CERAMIC CHIP	0.0039MF	10%	50V
C646	1-126-233-11	ELECT	22MF	20%	25V
C647	1-126-233-11	ELECT	22MF	20%	25V
C648	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C649	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C650	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C651	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C652	1-126-233-11	ELECT	22MF	20%	25V
C653	1-126-233-11	ELECT	22MF	20%	25V
C654	1-126-176-11	ELECT	220MF	20%	10V
C655	1-126-176-11	ELECT	220MF	20%	10V
C656	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C657	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C658	1-123-336-00	ELECT	470MF	20%	25V
C659	1-123-336-00	ELECT	470MF	20%	25V
C660	1-123-336-00	ELECT	470MF	20%	25V
C661	1-123-336-00	ELECT	470MF	20%	25V
C662	1-124-477-11	ELECT	47MF	20%	16V
C663	1-124-477-11	ELECT	47MF	20%	16V
C664	1-124-446-11	ELECT	47MF	20%	10V
C665	1-124-446-11	ELECT	47MF	20%	10V
C666	1-130-493-00	MYLAR	0.068MF	5%	50V
C667	1-130-493-00	MYLAR	0.068MF	5%	50V
C668	1-124-446-11	ELECT	47MF	20%	10V
C669	1-124-902-00	ELECT	0.47MF	20%	50V
C670	1-126-233-11	ELECT	22MF	20%	25V
C671	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C672	1-124-927-11	ELECT	4.7MF	20%	50V
C673	1-124-927-11	ELECT	4.7MF	20%	50V
C674	1-124-927-11	ELECT	4.7MF	20%	50V

CONNECTOR

Ref.No	Part No.	Description
CN601	*1-564-001-11	PIN, CONNECTOR 2P
CN602	*1-564-008-00	PIN, CONNECTOR 9P
CN603	*1-564-002-00	PIN, CONNECTOR 3P

FILTER

Ref.No	Part No.	Description
FL601	1-235-922-11	FILTER, LOW PASS (1.7MHZ)
FL602	1-235-805-11	FILTER, BAND PASS
FL603	1-235-806-11	FILTER, BAND PASS

IC

Ref.No	Part No.	Description
IC601	8-759-602-33	IC CX20197
IC602	8-759-932-54	IC BU4066BF
IC603	8-759-303-75	IC HA12083NT
IC604	8-759-700-15	IC UPC78M12H
IC605	8-759-700-24	IC NJM79M12A
IC606	8-759-708-05	IC NJM78L05A
IC607	8-759-700-65	IC NJM79L05A
IC608	8-759-302-81	IC HA12043

COIL

Ref.No	Part No.	Description	
L601	1-408-614-41	INDUCTOR	82UH
L602	1-408-614-41	INDUCTOR	82UH
L603	1-408-618-00	INDUCTOR	180UH
L604	1-408-425-00	INDUCTOR	220UH
L605	1-410-067-41	INDUCTOR	4.7MMH
L606	1-410-067-41	INDUCTOR	4.7MMH
L607	1-410-070-41	INDUCTOR	8.2MMH
L608	1-410-070-41	INDUCTOR	8.2MMH

TRANSISTOR

Ref.No	Part No.	Description
Q601	8-729-102-63	TRANSISTOR 2SC1623-L7
Q602	8-729-102-63	TRANSISTOR 2SC1623-L7
Q603	8-729-102-63	TRANSISTOR 2SC1623-L7
Q604	8-729-102-63	TRANSISTOR 2SC1623-L7
Q605	8-729-901-01	TRANSISTOR DTC144EK
Q606	8-729-102-63	TRANSISTOR 2SC1623-L7
Q607	8-729-102-63	TRANSISTOR 2SC1623-L7

RESISTOR

Ref.No	Part No.	Description			Remark
R601	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R602	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R603	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R604	1-216-045-00	METAL GLAZE	680	5%	1/10W
R605	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R606	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R607	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R608	1-216-031-00	METAL GLAZE	180	5%	1/10W
R609	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R610	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R611	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R612	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R613	1-216-041-00	METAL GLAZE	470	5%	1/10W
R614	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R615	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R616	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R617	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R618	1-216-029-00	METAL GLAZE	150	5%	1/10W
R619	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R620	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R621	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R622	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R623	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R624	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R625	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R626	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R627	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R628	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R629	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R630	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R631	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R632	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R633	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R634	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R635	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R636	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R637	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R638	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R639	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R640	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R641	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R642	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R643	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R644	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R645	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R646	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R647	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R648	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R649	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R650	1-249-749-00	CARBON	2.2M	5%	1/4W	
R651	1-249-749-00	CARBON	2.2M	5%	1/4W	
R652	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R653	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R654	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R655	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R656	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R657	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R658	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R659	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R660	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R661	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R662	1-216-096-00	METAL GLAZE	91K	5%	1/10W	
R663	1-249-753-15	CARBON	4.7M	5%	1/4W	
R664	1-216-096-00	METAL GLAZE	91K	5%	1/10W	
R665	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R666	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R667	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R668	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R673	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R674	1-216-033-00	METAL GLAZE	220	5%	1/10W	

Ref.No	Part No.	Description	Remark
		VARIABLE RESISTOR	
RV601	1-228-995-00	RES, ADJ, CARBON 22K (AUDIO OUTPUT LEVEL L)	
RV602	1-228-995-00	RES, ADJ, CARBON 22K (AUDIO OUTPUT LEVEL R)	

****

1-623-790-11 FG-10 BOARD (Ref.No. 2,000 Series)
****

Ref.No	Part No.	Description
	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT
		DIODE
D022	8-719-948-28	GP2S15S

****

*1-628-109-11 FG-11 BOARD (Ref.No. 2,000 Series)
****

Ref.No	Part No.	Description			
		DIODE			
D031	8-719-939-05	GP1S54			
D032	8-719-939-05	GP1S54			
		RESISTOR			
R031	1-249-407-11	CARBON	150	5%	1/4W
R032	1-249-407-11	CARBON	150	5%	1/4W

****

*1-628-106-11 CK-9 BOARD
****

****

*1-628-113-11 CL-10 BOARD (Ref.No. 1,000 Series)
****

Ref.No	Part No.	Description
		CONNECTOR
CN051	*1-564-002-00	PIN, CONNECTOR 3P
CN052	*1-564-002-00	PIN, CONNECTOR 3P
		JACK
CNJ051	1-561-534-00	SOCKET 21P

****

*1-628-107-11 AC-37 BOARD (Ref.No. 5,000 Series)
****

Ref.No	Part No.	Description			
	⚠.*1-533-189-11	HOLDER, FUSE			
		CAPACITOR			
C001	⚠.1-136-472-11	FILM	0.1MF	20%	250V

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

CONNECTOR

Ref.No	Part No.	Description	Remark
⚠CN001	.*1-560-436-00	HORIZONTAL PIN ASSY 3P	
⚠CN002	.1-560-435-00	HORIZONTAL PIN ASSY 2P	

FUSE

Ref.No	Part No.	Description	Remark
F001	⚠.1-532-078-00	FUSE, TIME-LAG (T1A 250V)	

TRANSFORMER

Ref.No	Part No.	Description	Remark
T001	⚠.1-421-765-11	FILTER, LINE	

****

1-628-110-11 FG-12 BOARD (Ref.No. 2,000 Series)
****

DIODE

Ref.No	Part No.	Description	Remark
D011	8-719-948-28	GP2S15S	

****

1-628-111-11 DC-12 BOARD (Ref.No. 2,000 Series)
****

Ref.No	Part No.	Description	Remark
	*3-720-395-01	HOLDER, CD SENSOR	

DIODE

Ref.No	Part No.	Description	Remark
D041	8-729-906-62	PT420FI	

****

*1-627-194-21 HP-44 BOARD (Ref.No. 3,000 Series)
****

CAPACITOR

Ref.No	Part No.	Description				Remark
C401	1-124-589-11	ELECT	47MF	20%	16V	
C402	1-124-589-11	ELECT	47MF	20%	16V	
C404	1-161-494-00	CERAMIC	0.022MF		25V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN401	*1-564-005-00	PIN, CONNECTOR 6P	

IC

Ref.No	Part No.	Description	Remark
IC401	8-759-700-40	IC NJM4560S	

JACK

Ref.No	Part No.	Description	Remark
J401	1-507-796-71	JACK (HEADPHONES)	

COIL

Ref.No	Part No.	Description	Remark
L401	1-424-033-21	FILTER, NOISE	
L402	1-424-033-21	FILTER, NOISE	
L403	1-424-033-21	FILTER, NOISE	

RESISTOR

Ref.No	Part No.	Description				Remark
R403	1-249-409-11	CARBON	220	5%	1/4W	
R404	1-249-409-11	CARBON	220	5%	1/4W	
R405	1-249-425-11	CARBON	4.7K	5%	1/4W	
R406	1-249-425-11	CARBON	4.7K	5%	1/4W	
R407	1-249-431-11	CARBON	15K	5%	1/4W	
R408	1-249-431-11	CARBON	15K	5%	1/4W	
R409	1-249-417-11	CARBON	1K	5%	1/4W	
R410	1-249-417-11	CARBON	1K	5%	1/4W	
R411	1-249-409-11	CARBON	220	5%	1/4W	
R412	1-249-409-11	CARBON	220	5%	1/4W	
R413	1-249-413-11	CARBON	470	5%	1/4W	
R414	1-249-413-11	CARBON	470	5%	1/4W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV401	1-230-997-11	RES, VAR, CARBON 20K/20K (LEVEL)	

****

MISCELLANEOUS
****

Ref.No	Part No.	Description	Remark
	1-466-014-11	MODULATOR, RF (RFU-2007)	
	⚠.1-555-795-00	CORD, POWER, EULO PLUG	
	*1-506-467-11	PIN, CONNECTOR 2P	
	*1-506-470-11	PIN, CONNECTOR 5P	
	⚠.8-848-090-11	DEVICE, OPTICAL KHS-110A	
IC001	8-759-171-05	IC UPC7805H	
M901	X-3720-310-1	MOTOR ASSY, FEED (TILT)	
M902	A-6415-171-A	SPM SUB BLOCK ASSY, LD (LD SPINDLE)	
M903	X-3720-302-1	MOTOR ASSY, L (THREAD)	
M905	X-3720-305-1	MOTOR ASSY (CD FEED)	
S901	1-570-112-11	SWITCH, LEAF (LD IN LIMIT)	
S902	1-570-771-11	SWITCH (CD IN LIMIT)	
S903	1-570-679-11	SWITCH (DOOR)	
S904	1-570-203-11	SWITCH, LEAF (TRANSFER) (CD SPINDLE)	
S905	1-570-771-21	SWITCH (MISS CHUCK)	
S906	1-571-189-11	SWITCH, ROTARY (ENCORDER)	
T002	⚠.1-449-383-12	TRANSFORMER, POWER	

****

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
1-465-075-11	REMOTE COMMANDER (RMT-102)	
1-551-513-00	CORD ASSY, COAXIAL	
3-695-308-01	DRIVER, VOLUME	
*3-694-922-01	SHEET, PROTECTION	
*3-721-260-01	CUSHION (UPPER)	
*3-721-261-01	CUSHION (LOWER)	
*3-721-296-21	INDIVIDUAL CARTON	
3-786-437-41	MANUAL, INSTRUCTION :ENGLISH (AEP/AUS MODEL)	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Part No.	Description	Remark
3-786-437-51	MANUAL, INSTRUCTION	: GERMAN/FRENCH (AEP MODEL)
3-786-437-61	MANUAL, INSTRUCTION	: NETHERLANDISH/ITALIAN (AEP MODEL)

****

HARDWARE LIST
****

SCREW

Part No.	Description
7-621-255-45	SCREW +P 2X6
7-621-259-35	SCREW +P 2.6X5
7-621-555-29	SCREW +K 2X4
7-628-254-00	+PSW, 2.6X5
7-621-759-45	+PSW, 2.6X6
7-621-772-30	SCREW +B 2X6
7-627-552-47	SCREW, PRECISION +P 1.7X4
7-628-253-90	SCREW +PS 2.6X4
7-628-254-10	SCREW +PS 2.6X6
7-628-254-20	SCREW +PS 2.6X8
7-682-144-01	SCREW +P 3X3
7-682-145-01	SCREW +P 3X4
7-682-146-09	SCREW +P 3X5
7-682-147-01	SCREW +P 3X6
7-682-149-09	SCREW +P 3X10
7-682-247-04	SCREW +K 3X6
7-682-553-09	SCREW +B 3X20
7-682-947-01	SCREW +PSW 3X6
7-682-948-01	SCREW +PSW 3X8
7-685-102-19	SCREW +P 2X4 TYPE 2 NON-SLIT
7-685-106-19	SCREW +P 2X10 TYPE 2 NON-SLIT
7-685-133-19	SCREW +P 2.6X6 TYPE 2 SLIT
7-685-132-19	SCREW +BTP 2.6X5 TYPE2 N-S
7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S
7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3
7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT
7-685-648-79	SCREW +BVTP 3X12 TYPE2 SLIT
7-621-255-25	SCREW +BVTT 2X4 (S)
7-621-255-45	SCREW +BVTT 2X6 (S)
7-621-773-86	SCREW +BVTT 2.6X4 (S)
7-685-799-04	SCREW (1.7X2.5), TAPPING
7-685-870-01	SCREW +BVTT 3X5 (S)
7-682-147-01	SCREW +BVTT 3X6 (S)

WASHER

Part No.	Description
7-623-422-07	LW 3, TYPE B

LUG

Part No.	Description
7-623-507-01	LUG, 2.6

STOP RING

Part No.	Description	Remark
7-624-105-04	STOP RING 2.3, TYPE -E	
7-624-108-04	STOP RING 4.0, TYPE -E	

STEEL BALL

Part No.	Description
7-671-112-11	BALL, STEEL
7-671-113-02	BALL, STEEL 3

****

When indicating parts by reference number, please include the board name.

SECTION 7
ELECTRICAL ADJUSTMENT

When adjusting, refer to the parts arrangement diagram for adjustments on page 132.

7-1. MEASURING INSTRUMENT JIG USED

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- 5.4 MHz oscillation jig (J-6022-400-A)
  Oscillator (5.0 MHz) (1-567-434-11)
  Oscillator (5.5 MHz) (1-567-435-11)
- Frequency counter
- Remote controller (RMT-102)
- LD reference disc REF1P-12CAD (8-847-017-00)
- CD reference disc YEDS-18 (3-702-101-01)
- Servo checker jigs
  Servo checker for LD (J-6166-370-A)
  Servo checker for CD (J-6080-907-A)
- Connection harness for servo checker
  10P-12P for LD servo checker (J-6080-880-A)

7-2. PRECAUTIONS ON ADJUSTMENT

- Do not insert or eject disc while the unit is on its side (Do not press OPEN or CLOSE button).
- When setting the unit on its side, put the left side down and perform with the power ON.
- Perform adjustment of the servo system with the unit in the level position.
- Be sure that the unit is level for search. (Abnormal thread operation may occur when search is performed with the unit on its side.)

7-3. REFERENCE DISCS

7-3-1. LD Reference Disc

The reference disc for adjustment of this unit is REF1P-12CAD (8-847-017-00).
If there is a specific indication, follow that indication.

7-3-2. CD Reference Disc

The reference disc for adjustment of this unit is YEDS-18 (3-702-101-01)

7-4. SERVO CHECKER JIGS

7-4-1. Servo Checker for LD (J-6166-370-A)

1. Connections

1) Connect 10P connector of connecting harness to CN1 on rear panel of SERVO CHECKER jig.
2) Remove upper cover and connect 12P connector of connecting harness from jig to CN402 (Adjusting connector) on LP-3 board.

2. Respective terminals and switches

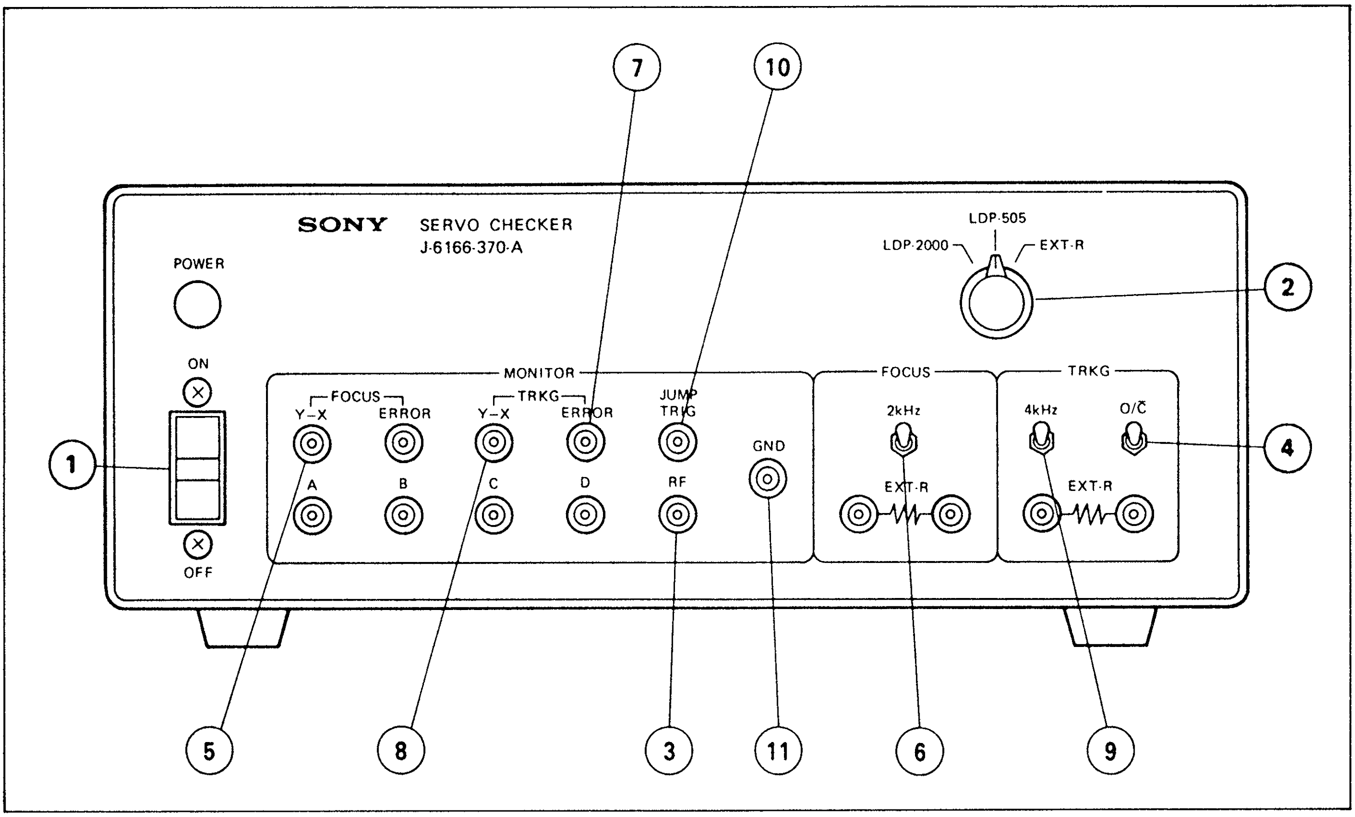

7
10
SONY
SERVO CHECKER
J-6166-370-A
POWER
ON
OFF
LDP-505
LDP-2000
EXT-R
2
MONITOR
FOCUS
Y-X
ERROR
TRKG
Y-X
ERROR
JUMP
TRIG
GND
A
B
C
D
RF
FOCUS
2kHz
EXT-R
TRKG
4kHz
O/C̄
EXT-R
1
4
5
8
3
11
6
9

Fig. 7-1

① POWER switch	
② Model selection switch	Set to LDP-505 during adjustment.
③ RF terminal	Connect oscilloscope during focus offset adjustment and to RF level adjustment.
④ TRKG O/$\overline{C}$ switch	Set to O (open) only during tracking offset adjustment and to $\overline{C}$ (close) during other adjustment.
⑤ FOCUS Y-X terminal	Connect oscilloscope during focus gain adjustment.
⑥ FOCUS 2 kHz switch	Turn ON switch during FOCUS gain adjustment and to OFF during other adjustments.
⑦ TRKG ERROR terminal	Connect oscilloscope during tracking offset adjustment and track jump adjustment.
⑧ TRKG Y-X terminal	Connect oscilloscope during tracking gain adjustment.
⑨ TRKG 4 kHz switch	Turn ON switch during tracking gain adjustment and to OFF switch during other adjustments.
⑩ JUMP TRIG terminal	Connect oscilloscope during track jump adjustment. (Triggers at TRKG jump)
⑪ GND terminal	

7-4-2. Servo Checker for CD (J-6080-907-A)

1. Connections

1) Connect the servo checker connection harness to the INPUT connector on the rear panel of the servo checker.
2) Connect the 12-pin side of the connection harness to the CN402 on LP-3 board of this unit.

2. Names and functions of switches and terminals

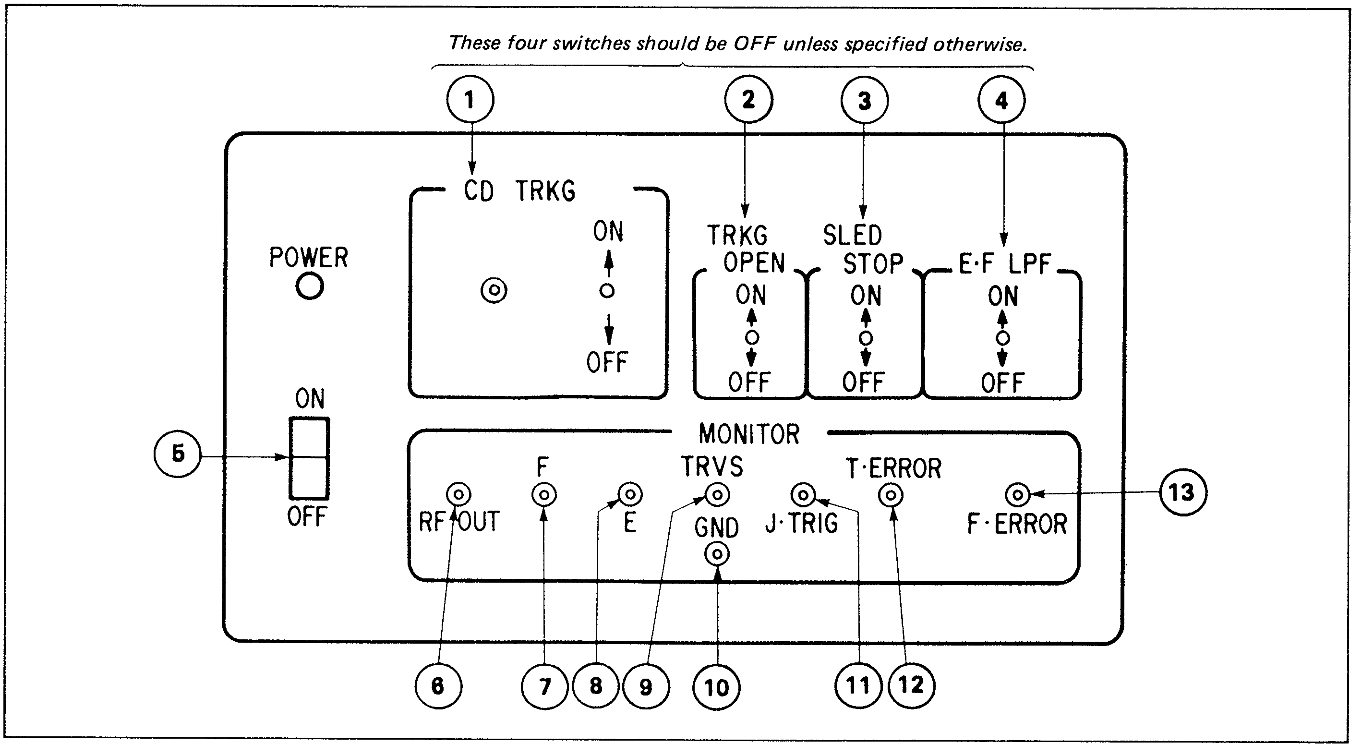

These four switches should be OFF unless specified otherwise.
①
②
③
④
CD TRKG
ON
OFF
POWER
TRKG OPEN
ON
OFF
SLED STOP
ON
OFF
E·F LPF
ON
OFF
ON
⑤
OFF
MONITOR
F
TRVS
T·ERROR
RF OUT
E
GND
J·TRIG
F·ERROR
⑬
⑥
⑦
⑧
⑨
⑩
⑪
⑫

Fig. 7-2

①	CD TRACKING switch	ON for CD tracking gain adjustment.
	CD TRACKING terminal	Used for adjustment of CD tracking gain.
②	TRACKING OPEN switch	ON for adjustment of CD tracking offset.
③	SLED STOP switch	
④	E·F LPF switch	
⑤	Power switch	
⑥	RF OUT terminal	Used for LD/CD focus offset adjustment.
⑦	F terminal	
⑧	E terminal	
⑨	TRVS terminal	Used for LD/CD track jump adjustment.
⑩	GND terminal	Connected to GND of oscilloscope.
⑪	J·TRIG terminal	Used for LD/CD track jump adjustment (external trigger terminal for oscilloscope).
⑫	T-ERROR terminal	LD/CD tracking offset adjustment. Used for LD/CD track jump adjustment.
⑬	F-ERROR terminal	

7-5. POWER SUPPLY SECTION CHECK (PS-188 BOARD)

Mode	Stop
Measuring Instrument	Digital voltmeter
EVER +5 V check	
Measurement Point	Pin ⑦ of CN103
Specified Value	+5.0 ±0.25 V dc
REG +12 V check	
Measuring Point	Pin ① of CN103
Specified Value	+12.0 ±0.6 V dc
REG +9 V check	
Measurement Point	Pin ② of CN103
Specified Value	+9.0 ±0.45 V dc
REG +5 V check	
Measurement Point	Pin ③ of CN103
Specified Value	+5.0 ±0.25 V dc
REG −5 V check	
Measurement Point	Pin ⑤ of CN103
Specified Value	−5.0 ±0.25 V dc
UNREG +16 V check	
Measurement Point	Pin ① of CN102
Specified Value	+16 ±3 V dc
UNREG −16 V check	
Measurement Point	Pin ③ of CN102
Specified Value	−16 ±3 V dc
REG +9 V check	
Measurement Point	Pin ④ of CN102
Specified Value	+9.0 ±0.5 V dc
REG −9 V check	
Measurement Point	Pin ⑤ of CN102
Specified Value	−9.0 ±0.5 V dc
−30 V check	
Measurement Point	Pin ④ of CN104
Specified Value	−30 ±3 V dc
FLT Filament check	
Measurement Point	Pins ①, ② of CN104
Specified Value	4.5 ±1 Vrms

Checking method:

1) Make sure that each of the power supply voltages satisfies the specified value.

7-6. SYSTEM CONTROL SYSTEM ADJUSTMENT

7-6-1. Microcomputer Clock Adjustment (LP-3 Board)

Mode	Stop
Measurement Point	Pin ① of IC005
Measuring Instrument	Frequency counter
Adjusting Element	CV001
Specified Value	4433619 ±10 Hz

Adjusting method:

1) Adjust with CV001 so that it becomes 4433619 ±10 Hz.

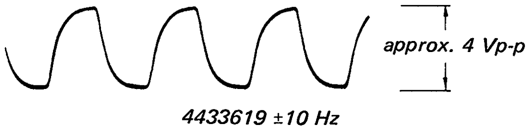


Fig. 7-3

7-7. SERVO SYSTEM ADJUSTMENT

Note the following points when adjusting the servo system.

- Perform adjustment with the LD servo checker connected.
- Adjustment of the CD servo system is performed with the CD servo checker connected.
- Be sure to perform adjustment with the unit in the level position.
- Perform adjustment of the CD servo system after adjustment of the digital audio system.
- After setting the tracking servo to the OPEN state, perform the following adjustment after setting to the STOP position.
- Perform adjustment in the following order when replacing the optical block.
  1. LD tracking offset adjustment (rough adjustment)
     *Make adjustment at any section of the disc as this is rough adjustment.
  2. LD focus offset adjustment
  3. LD focus gain adjustment
  4. LD tracking offset adjustment
  5. LD tracking gain adjustment
  6. LD skew adjustment
  7. LD focus offset adjustment
  8. LD focus gain adjustment
  9. LD tracking jump adjustment
  10. CD focus offset adjustment
  11. CD tracking offset adjustment
  12. CD tracking gain adjustment
  13. CD tracking jump adjustment

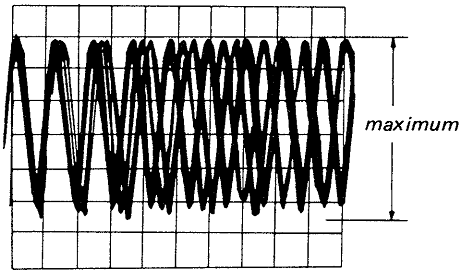
7-7-1. LD System Servo Adjustment

1. LD focus offset adjustment (LP-3 board)

Mode	STILL
Signal	Frame 30001 (MULTI BURST), REF1P
Measurement Point	RF OUT terminal (servo checker)
Measuring Instrument	Oscilloscope
Adjusting Element	RV404
Specified Value	Maximum amplitude

Adjusting method:

1) Set to still (STILL: ▶◀) mode.
2) Search for frame 30001 (MULTI BURST).
3) Set the RF signal level to maximum using RV404.



0.1 μsec/DIV

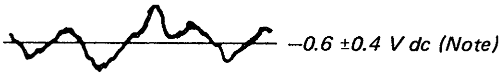
Fig. 7-4

2. LD focus gain adjustment (LP-3 board)

Mode	STILL
Signal	Frame 30001 (MULTI BURST)
Measurement Point	FOCUS Y-X terminal (servo checker)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV406
Specified Value	−0.6 ±0.4 V dc

Adjusting method:

1) Set to still (STILL: ▶◀) mode.
2) Search for frame 30001 (MULTI BURST).
3) Turn ON (upper position) the FOCUS 2 kHz switch of the servo checker.
4) Adjust the center level of the FOCUS Y-X signal to −0.6 ±0.4 V dc (note) using RV406.
5) Turn OFF the FOCUS 2 kHz switch.



200 mV/DIV 10 mS/DIV

Fig. 7-5

3. LD tracking offset adjustment (LP-3 board)

Mode	STILL
Signal	Frame 30001
Measurement Point	Pin ⑪ of CN402 (TRVS)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV405
Specified Value	Center voltage of tracking error signal is 0 ±0.1 V dc

Adjusting method:

1) Set to still (STILL: ▶◀) mode.
2) Search for frame 30001.
3) Turn OFF the thread servo. (Connect (short) the alligator clip and lug terminal of the connection harness.)
4) Set the tracking servo to the OPEN state. (Set TRKG O/C switch to upper position.)
5) Set the center voltage of the tracking error signal to 0 ±0.1 V dc using RV405.
6) Set to the stop state (STOP: ■).
7) Return the tracking servo to the CLOSE state.
8) Turn ON the thread servo.

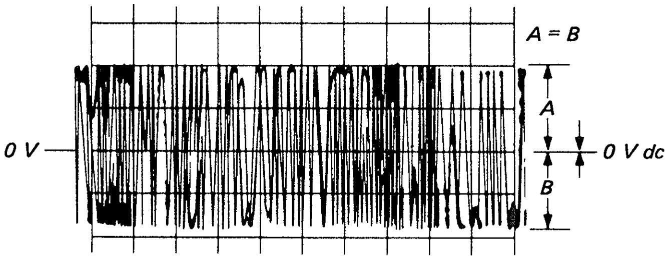


Fig. 7-6

4. LD tracking gain adjustment (LP-3 board)

Mode	STILL
Signal	Frame 30001 (MULTI BURST)
Measurement Point	TRKG Y-K terminal (servo checker)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV407
Specified Value	+1.0 ±0.2 V dc (note)

Note: Be sure to perform "CD tracking gain adjustment" after performing this adjustment.

Adjusting method:

1) Set to still (STILL: ▶◀) mode.
2) Search for frame 30001 (MULTI BURST).
3) Turn ON (upside position) the TRKG 4 kHz switch of the servo checker.
4) Set the center level of the TRKG Y-X signal to +1.0 ±0.2 V dc (note) using RV407.
5) Turn OFF the TRKG 4 kHz switch.

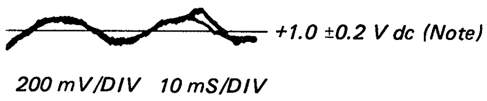


Fig. 7-7

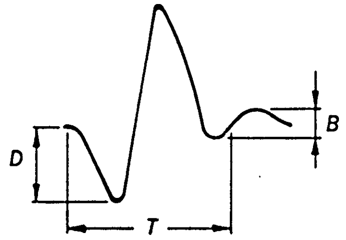
5. LD tracking jump adjustment (LP-3 board)

Mode	STILL and forward x3 playback
Signal	Chapter 13, 1, 39, REF1P
Measurement Point	CH1: Pin ⑪ of CN402 (TRVS) EXT TRIG: JUMP TRIG terminal (servo checker)
Measuring Instrument	Oscilloscope (Trigger slope: +, trigger source: EXT)
Adjusting Element	RV408 (STILL), RV409 (+x3)
Specified Value	Minimum amplitude of A and B section

Note: Before adjusting, confirm the rotational position of RV408 and if adjustment cannot be properly performed, retùrn RV408 to its original position and readjust.

Adjusting method:

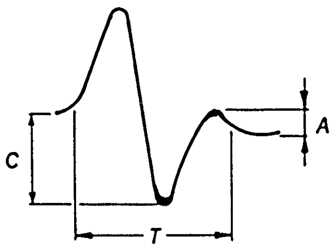
1) Set the TRKG O/$\overline{C}$ switch of the servo checker to $\overline{C}$ (close) side.
2) Set to still (STILL: ▶◀) mode.
3) Search for chapter 13.
4) Adjust with RV408 so to minimize the section B of waveform, and also to make $B \leqq D/4$, $T \leqq 0.3$ msec.
5) Set to the forward x3 playback mode.
6) Adjust with RV409 so to minimize the section A of waveform, and also to make $A \leqq C/4$, $T \leqq 0.3$ msec.
7) When the specified value is not satisfied, repeat items 3) to 6).
8) Search for chapter 1.
9) Confirm the waveforms on still and forward x3 playback modes. (Checking of inner circumference of track jump.)
10) Search for chapter 39.
11) Confirm the waveforms on still and forward x3 playback modes. (Checking of outer circumference of track jump.)



500mV/DIV 50μS/DIV

Waveform in STILL state

Fig. 7-8



500mV/DIV 50μS/DIV

Waveform in x3 speed FWD state

Adjust with RV408 and RV409 so that A and B become minimum in waveform in the STILL and x3 speed FWD states.

Confirm that $A \leqq C/4$: x3 speed FWD waveform
$B \leqq D/4$: $T \leqq 0.3$ msec

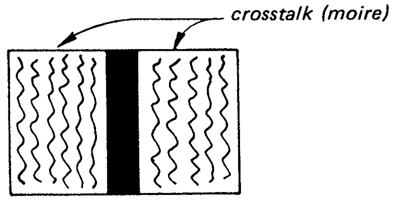
Fig. 7-9

6. LD skew adjustment (LP-3 board)

Mode	STILL
Signal	Frame 2 (vertical bar), REF1P
Measurement Point	Monitor TV
Measuring Instrument	Monitor TV
Adjusting Element	RV552
Specified Value	Minimum crosstalk (moire)

Adjusting method:

1) Set to still (STILL: ▶◀) mode.
2) Search for frame 2 to display vertical bars.
3) Adjust RV552 for minimum crosstalk (moire).



Adjust so that the levels of the crosstalk appearing on the left and right is the same and that there is minimum crosstalk.

Fig. 7-10

7-7-2. CD System Servo Adjustment

1. CD focus offset adjustment (LP-3 board)

Mode	Playback
Signal	Track number 1, YEDS-18
Measurement Point	RF OUT terminal (servo checker)
Measuring Instrument	Oscilloscope
Adjusting Element	RV403
Specified Value	Maximum amplitude

Adjusting method:

1) Playback track number 1.
2) Adjust RV403 so that the RF signal level is maximum.

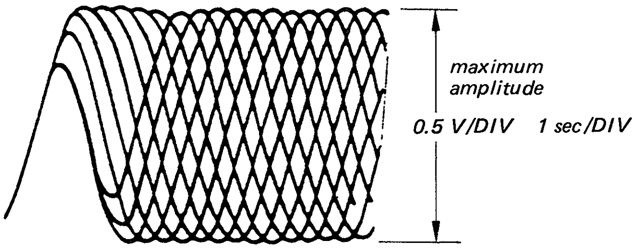


Fig. 7-11

2. CD tracking offset adjustment (LP-3 board)

Mode	Playback
Signal	Arbitrary position on disc, YEDS-18
Measurement Point	Pin ⑪ of CN402 (TRVS)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV401
Specified Value	Center voltage of output level: 0 ±10 mV dc

Adjusting method:

1) Set to the playback mode.
2) Press the PAUSE (‖) button.
3) Turn ON the TRACKING OPEN switch of the servo checker.
4) Adjust RV401 so that the center voltage of the tracking error signal is 0 ±10 mV dc.
5) Turn OFF the TRACKING OPEN switch.

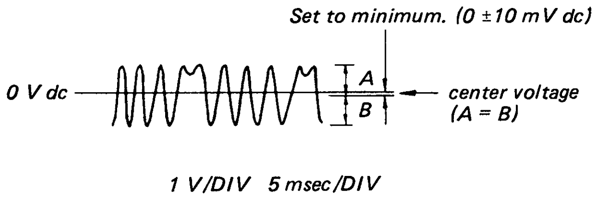


Fig. 7-12

3. CD tracking gain adjustment (LP-3 board)

Mode	Playback
Signal	Track number 1, YEDS-18
Measurement Point	CD TRKG terminal (servo checker)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV411
Specified Value	−300 ±50 mV dc

Adjusting method:

1) Playback track number 1.
2) Turn ON the CD TRKG switch of the servo checker.
3) Adjust RV411 so that the center level of the CD TRKG signal is −300 ±50 mV dc.
4) Turn OFF the CD TRKG switch of the servo checker.

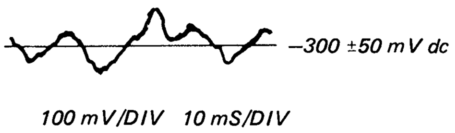


Fig. 7-13

4. CD tracking jump adjustment (LP-3 board)

Mode	Pause
Signal	Track number 1, YEDS-18
Measurement Point	CH1: J TRIG terminal (servo checker) CH2: TRVS terminal (servo checker) or Pin ⑪ of CN402
Measuring Instrument	Oscilloscope (Trigger slope: +, Trigger source: EXT, DC range)
Adjusting Element	RV410
Specified Value	Minimum amplitude in A section

Note: Turn ON the E·F LPF switch of the servo checker. (Connect the LPF shown below when connecting an oscilloscope to Pin ⑪ of CN402.)

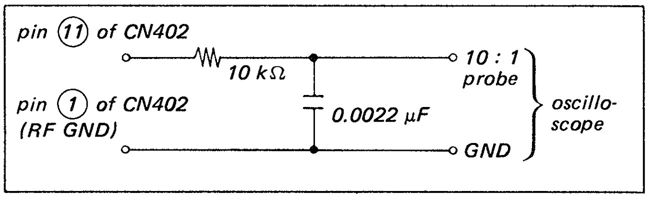

pin ⑪ of CN402
10 kΩ
10 : 1 probe
pin ① of CN402
(RF GND)
0.0022 µF
oscillo-scope
GND

Fig. 7-14

Adjusting method:

1) Playback track number 1.
2) Press the PAUSE (❙❙) button.
3) Adjust RV410 for minimum amplitude in the A section.

Note: When the optimum tracking error waveform cannot be obtained, perform CD tracking jump adjustment again after readjusting CD tracking gain with a specified value of –400 ±50 mV dc.

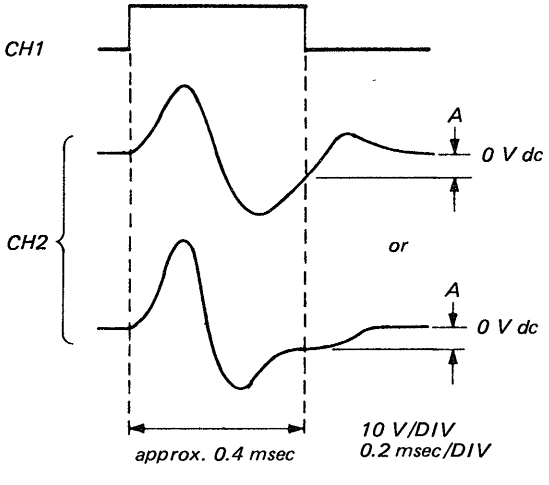

CH1
CH2
A
0 V dc
or
A
0 V dc
approx. 0.4 msec
10 V/DIV
0.2 msec/DIV

Fig. 7-15

7-8. VIDEO SYSTEM ADJUSTMENT

7-8-1. RF Level Adjustment (LP-3 Board)

Mode	STILL
Signal	Frame 29000 (gray screen)
Measurement Point	Q103 Ⓔ
Measuring Instrument	Oscilloscope
Adjusting Element	RV101
Specified Value	1.0 ±0.1 Vp-p

Adjusting method:

1) Set to the STILL mode.
2) Search for frame 29000.
3) Adjust with RV101 to 1.0 ±0.1 Vp-p.

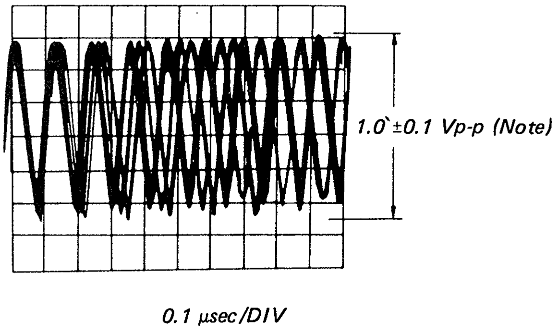

1.0 ±0.1 Vp-p (Note)
0.1 µsec/DIV

Fig. 7-16

7-8-2. DOC Adjustment (1) (LP-3 Board)

Mode	Stop
Signal	The oscillation element of the 5.4 MHz oscillation jig (J-6022-400-A) is changed and the following signals are input to the base of Q102. (See Fig. 7-17.) 1. 5.0 MHz, 1 Vp-p sine wave 2. 5.5 MHz, 1 Vp-p sine wave
Measurement Point	Pin ① of IC101
Measuring Instrument	Oscilloscope
Adjusting Element	RV102
Specified Value	“H” at 5.0 MHz (approx. 4 V dc 4 V dc) “L” at 5.5 MHz (approx. 0 V dc)

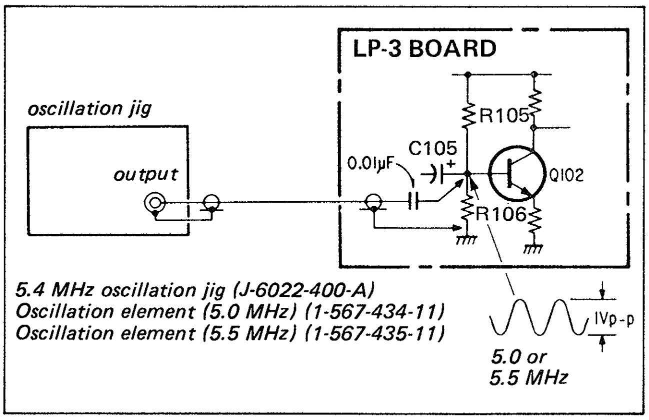

LP-3 BOARD
oscillation jig
output
R105
C105
0.01μF
Q102
R106
5.4 MHz oscillation jig (J-6022-400-A)
Oscillation element (5.0 MHz) (1-567-434-11)
Oscillation element (5.5 MHz) (1-567-435-11)
1Vp-p
5.0 or
5.5 MHz

Fig. 7-17

Adjusting method:

1) Input a 5.0 MHz, 1 Vp-p sine wave from the oscillation jig to the base of Q102.
2) Rotate RV102 until a 4 Vp-p random pulse is output from Pin ① of IC101, and remember the rotational position of RV102 at this time.
3) Change the input signal from the oscillation jig to 5.5 MHz, 1 Vp-p sine wave.
4) Rotate RV102 until a 4 Vp-p random pulse is output from Pin ① of IC101, and remember the rotational position of RV102 at this time.
5) Set RV102 to a center position between the positions noted in 2) and 4).
6) Confirm that the level at Pin ① of IC101 is “L” (approx. 0 V dc).
7) Change the input signal from the oscillation jig to 5.0 MHz, 1 Vp-p sine wave.
8) Confirm that the level at Pin ① of IC101 is “H” (approx. 4 V dc).

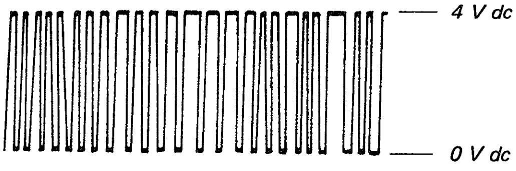


Fig. 7-18

7-8-3. DOC Adjustment (2) (LP-3 Board)

Mode	Playback
Signal	Frame 37000 (color bars), REF1P
Measurement Point	CH1: Pin ② of IC104 CH2: Pin ⑦ of IC104
Measuring Instrument	Oscilloscope
Adjusting Element	RV103
Specified Value	A = B

Adjusting method:

1) Search for frame 37000, and playback the color bars.
2) Adjust with RV103 to Y level A = B.
3) Confirm that there is no chroma signal Pin ②.

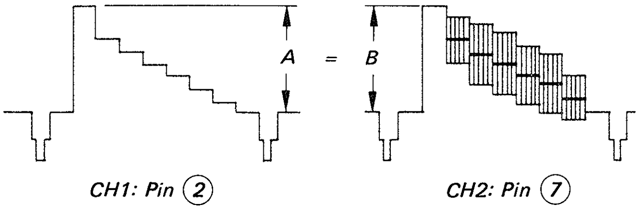


Fig. 7-19

7-8-4. TBC Clock (Lower Limit) Adjustment (LP-3 Board)

Mode	Playback
Signal	Arbitrary position, REF1P
Measurement Point	Pin ⑭ of IC106
Measuring Instrument	Oscilloscope
Adjusting Element	RV105
Specified Value	13.6 ±0.2 MHz

Adjusting method:

1) Connect Pin ⑯ of IC108 to GND using a jumper.
2) Playback an arbitrary position.
3) Adjust with RV105 so that it becomes 13.6 ±0.2 MHz.

7-8-5. TBC Clock (Upper Limit) Check (LP-3 Board)

Mode	Stop
Measurement Point	Pin ⑭ of IC106
Measuring Instrument	Frequency counter
Specified Value	$26^{+2.5}_{-1.5}$ MHz

Adjusting method:

1) Connect Pin ⑲ of IC108 to GND using a jumper wire.
2) Confirm that the TBC clock frequency is 26.5 MHz (within range of 28.5 to 24.5 MHz).
3) If not within this specifiecation, adjust to specified value by RV105 and confirm lower limiter.
4) Remove the jumper wire.

7-8-6. CCD Bias Adjustment (LP-3 Board)

Mode	STILL
Signal	Frame 37000 (color bar)
Measurement Point	Q118 emitter
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV104
Specified Value	Sync tip level: 2.1 ±0.1 V dc

Adjusting method:

1) Set to the still mode.
2) Search for frame 37000 to display color bars.
3) Adjust RV104 so that the DC level of the sync tips is 2.1 ±0.1 V dc.

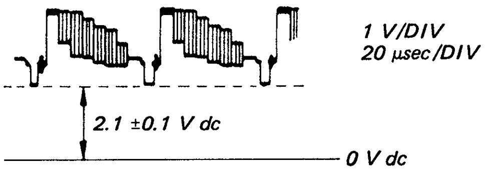


Fig. 7-20

7-8-7. TBC IC Adjustment (LP-3 Board)

Mode	Playback
Signal	Frame 37000 (color bar), REF1P
Measurement Point	Pin ㉟ of IC108
Measuring Instrument	Oscilloscope
Adjusting Element	RV107
Specified Value	5.0 ±0.3 µsec

Adjusting method:

1) Adjust with RV107 so that width of output pulse becomes 5.0 ±0.3 µsec.

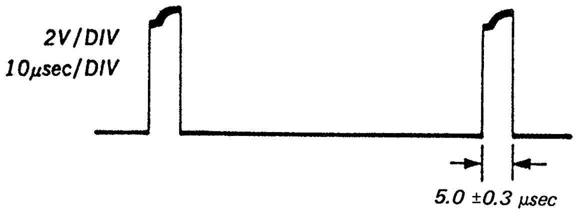


Fig. 7-21

7-8-8. Color Framing Y Level (LP-3 Board)

Mode	Playback
Signal	Frame 37000 (color bar)
Measurement Point	CH1: Pin ① of IC112 CH2: Pin ⑥ of IC112
Measuring Instrument	Oscilloscope
Adjusting Element	RV110
Specified Value	A = B

Adjusting method:

1) Search for frame 37000.
2) Equalize with RV110 Y levels on Pins ① and ⑥.

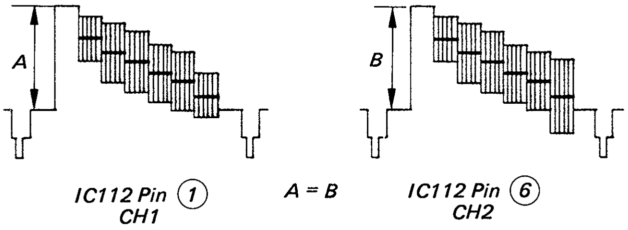


Fig. 7-22

7-8-9. Color Framing Chroma Level I Adjustment (LP-3 Board)

Mode	Playback
Signal	Frame 37000 (color bar), STILL
Measurement Point	Pin ⑥ of IC112
Measuring Instrument	Oscilloscope
Adjusting Element	RV108
Specified Value	A–B: minimum

Adjusting method:

1) Minimize with RV108 the shaking of blue portion.

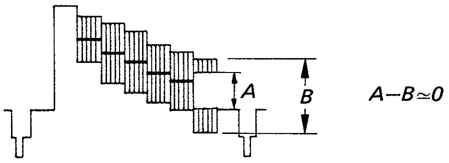


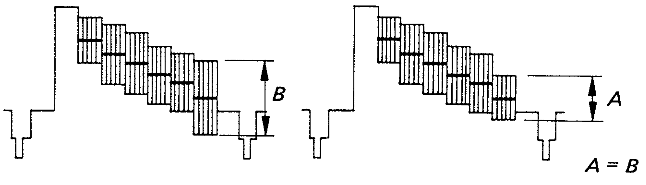
Fig. 7-23

7-8-10. Color Framing Chroma Level II Adjustment (LP-3 Board)

Mode	Playback
Signal	Frame 37000 (color bar), STILL
Measurement Point	CH1: Pin ① of IC112 CH2: Pin ⑥ of IC112
Measuring Instrument	Oscilloscope
Adjusting Element	RV109
Specified Value	A = B

Adjusting method:

1) Equalize with RV109 blue levels on CH1 and CH2.



IC112 Pin ① CH1

IC112 Pin ⑥ CH2

Fig. 7-24

7-8-11. Video Output Level Adjustment (LP-3 Board)

Mode	STILL
Signal	Frame 32500 (color bar)
Measurement Point	Q148 emitter
Measuring Instrument	Oscilloscope
Adjusting Element	RV106
Specified Value	2.0 ±0.1 Vp-p

Adjusting method:

1) Set the CAV MODE switch on the front panel to the NORMAL position.
2) Set to the still mode.
3) Search for frame 32500 to display color bars.
4) Adjust with RV105 to 2.0 ±0.1 Vp-p.

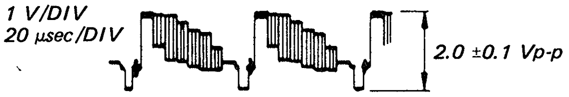


Fig. 7-25

7-9. AUDIO SYSTEM ADJUSTMENTS

7-9-1. Analog Audio System Adjustment

1. Audio output level adjustment (AF-49 board)

Note: The adjusting element for 2/right channel si shown in [ ].

Mode	Playback
Signal	Chapter 6 (1 kHz), REF1P
Measurement Point	1/left [2/right] terminal of audio line output 2
Measuring Instrument	Audio level meter or oscilloscope
Adjusting Element	RV601 [RV602]
Specified Value	Audio level meter: −3.8 ±0.8 dBs (500 ±15 mVrms) Oscilloscope: 1.48 ±0.04 Vp-p

Adjusting method:

1) Search for chapter 6.
2) Turn OFF [CX] with the remote control.
   (Confirm that indication on all panels disappears.)
3) Adjust to −3.8 ±0.3 dBs (500 ±15 mVrms) or 1.48 ±0.04 Vp-p with RV601 [RV602].

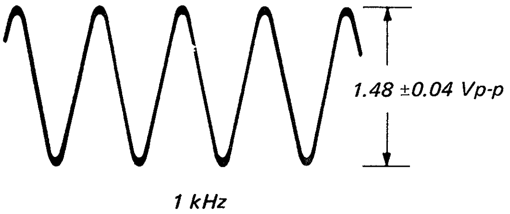


Fig. 7-26

7-9-2. Digital Audio System Adjustments

1. Power supply voltage check (DS-27 board)

Mode	Stop
Measuring Instrument	Digital voltmeter
−12 V check	
Measurement Point	Pin ④ of IC809
Specified Value	−12 ±0.5 V dc
+12 V check	
Measurement Point	Pin ⑧ of IC809
Specified Value	+12 ±0.5 V dc
+12 V check	
Measurement Point	Pin ⑧ of IC815
Specified Value	+12 ±0.5 V dc
+5 V check	
Measurement Point	Pin ⑯ of IC813
Specified Value	+5 ±0.25 V dc
−12 V check	
Measurement Point	Pin ④ of IC815
Specified Value	−12 ±0.5 V dc
−5 V check	
Measurement Point	Pin ① of IC813
Specified Value	−5 ±0.5 V dc

Checking method:

1) Make sure that each of the voltages satisfies the specified value.

2. RF PLL free run frequency adjustment (DS-27 board)

Mode	Stop
Measurement Point	D804 anode (Pin ⑱ of IC805)
Measuring Instrument	Frequency counter
Adjusting Element	LV801
Specified Value	4.321 ±0.02 MHz

Adjusting method:

1) Connect between Pin ⑧ of IC805 (EFM IN) and GND with a 1 μF/50 V component.
2) Adjust to 4.321 ±0.02 MHz with LV801.

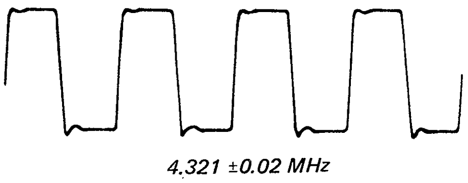


Fig. 7-27

Note: Use a ceramic driver as fluctuation in the value is liable to occur with a metallic driver.

7-10. E·F LITHARGE WAVEFORM ADJUSTMENT

Mode	Playback
Signal	Track number 1, YEDS-18
Measurement Point	CH1: E terminal (servo checker) CH2: F terminal (servo checker)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjusting Element	Eccentric pin
Specified Value	A : B = 1 : 2

Note: 1) Before adjustment, loosen the locking screw. After adjustment, tighten the locking screw and apply locking compound to the screw and the eccentric pin.
2) Repairs of the CD feed base block and the optical block need this adjustment.

Adjusting method:
1) Playback track number 1.
2) Turn ON the TRKG OPEN, SLED STOP, and EF LPF switches of the servo checker.
3) Adjust the eccentric pin so that the A : B is 1 : 2.
4) Turn OFF the TRKG OPEN, SLED STOP, and EF LPF switches.

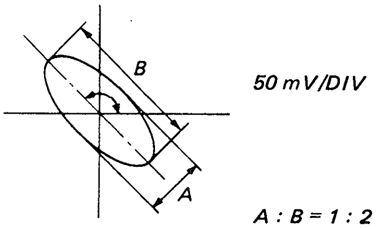


Fig. 7-28-1

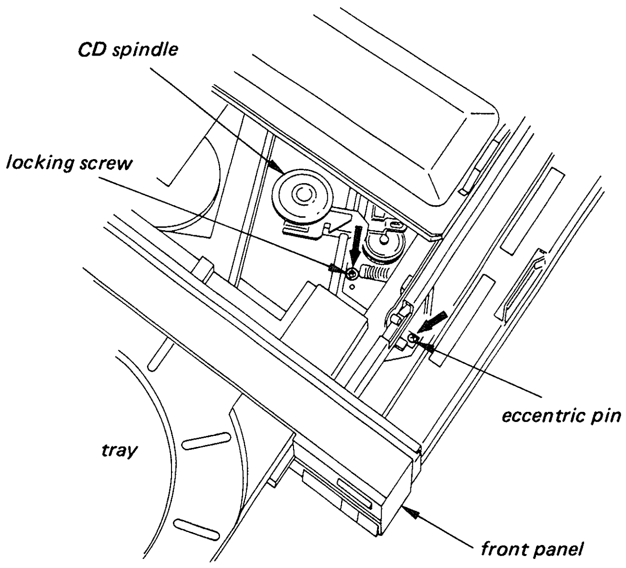
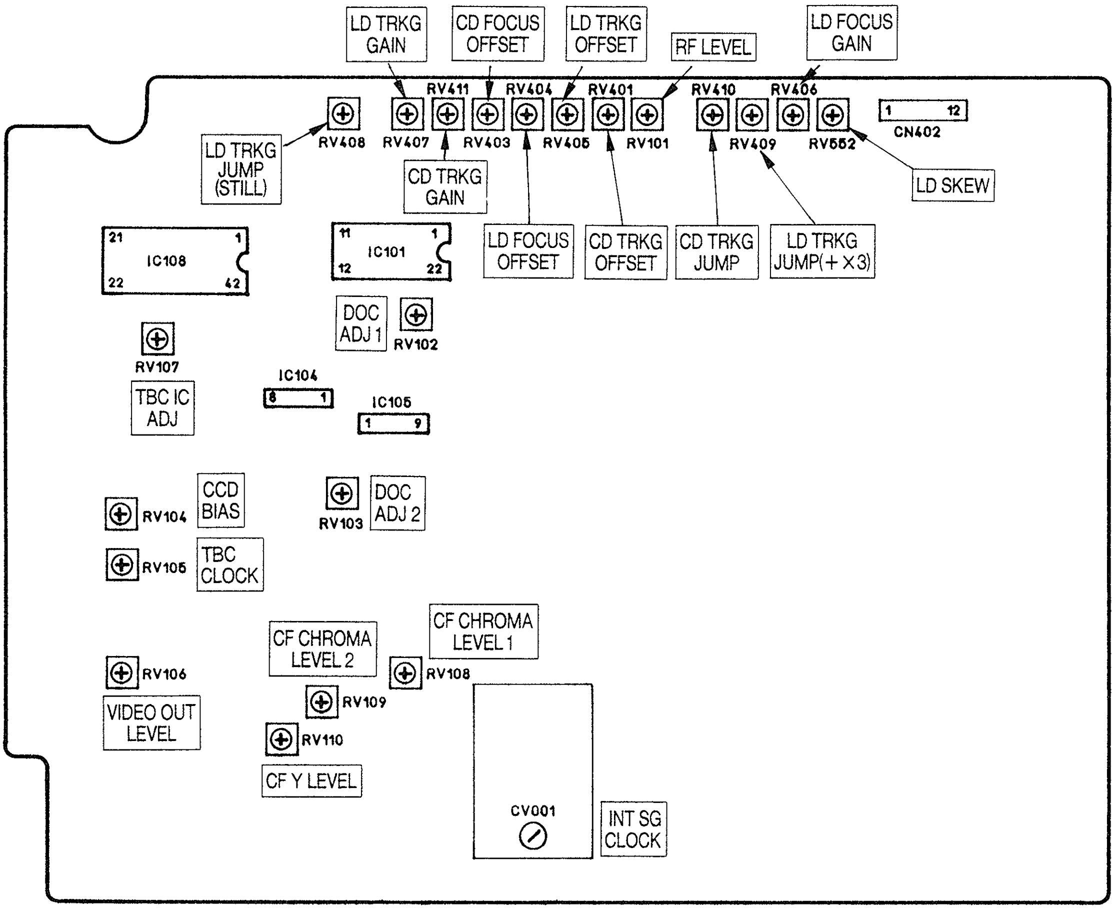


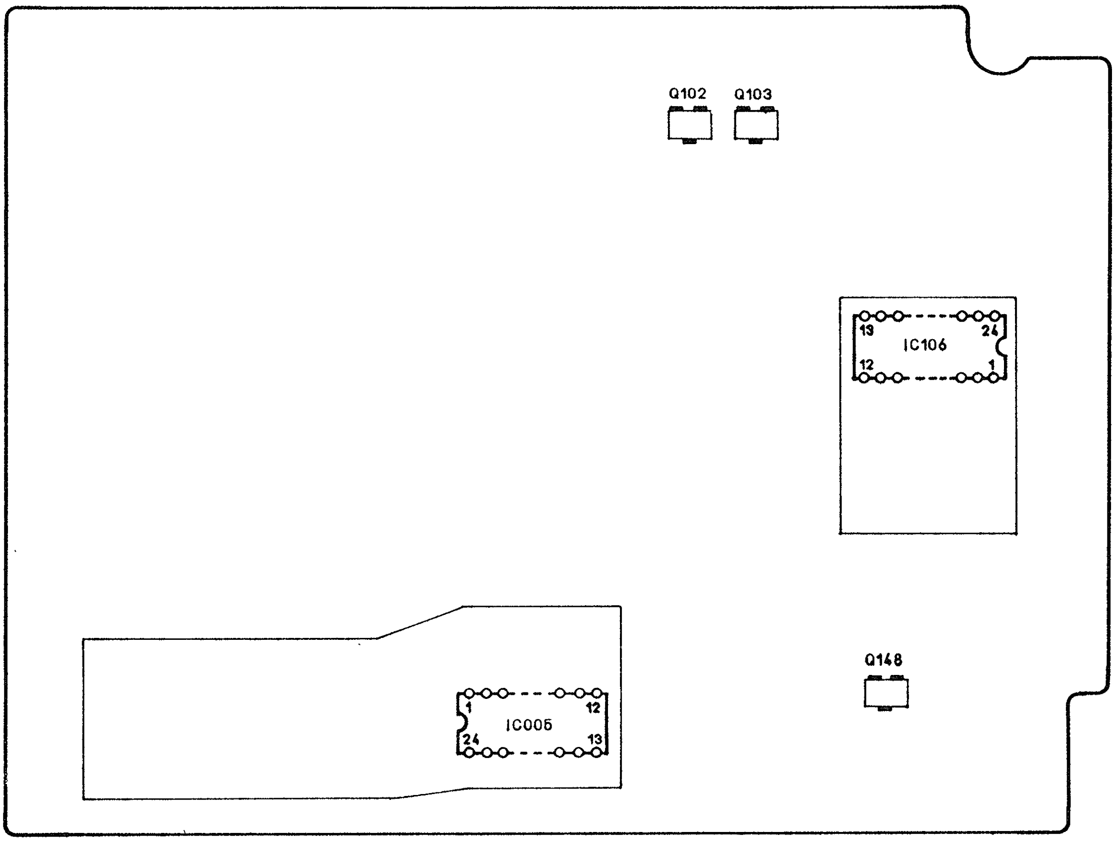
Fig. 7-28-2

7-11. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

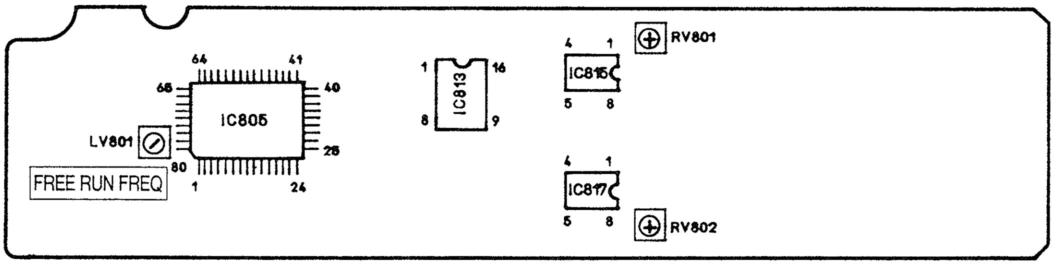
LP-3 BOARD (COMPONENT SIDE)


LD TRKG GAIN
CD FOCUS OFFSET
LD TRKG OFFSET
RF LEVEL
LD FOCUS GAIN
RV411
RV404
RV401
RV410
RV406
RV408
RV407
RV403
RV405
RV101
RV409
RV552
CN402
1
12
LD TRKG JUMP (STILL)
CD TRKG GAIN
LD SKEW
LD FOCUS OFFSET
CD TRKG OFFSET
CD TRKG JUMP
LD TRKG JUMP(+×3)
IC108
21
1
22
42
IC101
11
1
12
22
DOC ADJ 1
RV102
RV107
TBC IC ADJ
IC104
8
1
IC105
1
9
RV104
CCD BIAS
RV103
DOC ADJ 2
RV105
TBC CLOCK
CF CHROMA LEVEL 2
CF CHROMA LEVEL 1
RV108
RV106
RV109
VIDEO OUT LEVEL
RV110
CF Y LEVEL
CV001
INT SG CLOCK

LP-3 BOARD (CONDUCTOR SIDE)

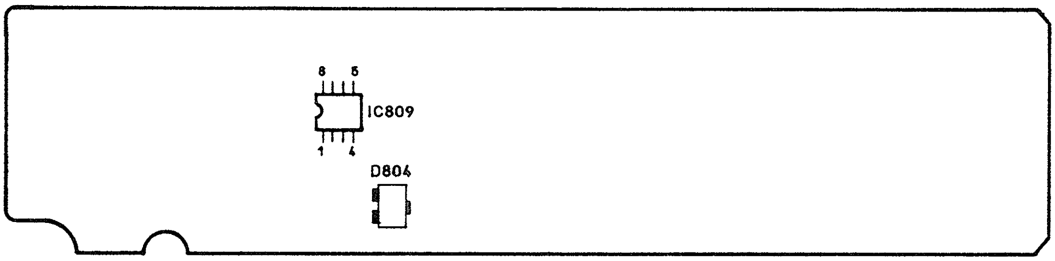

Q102
Q103
IC106
13
24
12
1
Q148
IC005
1
12
24
13

DS-27 BOARD (COMPONENT SIDE)



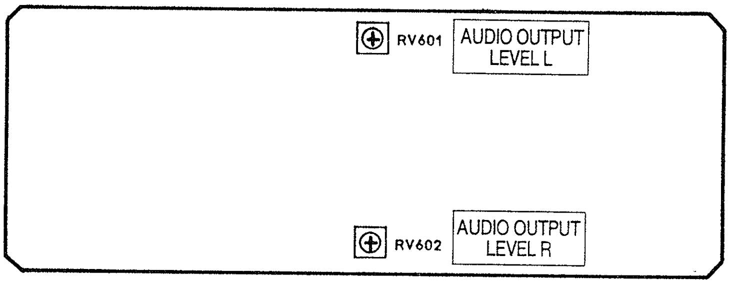
64
41
65
40
IC805
LV801
25
FREE RUN FREQ
80
1
24
1
16
IC813
8
9
4
1
IC815
5
8
RV801
4
1
IC817
5
8
RV802

DS-27 BOARD (CONDUCTOR SIDE)



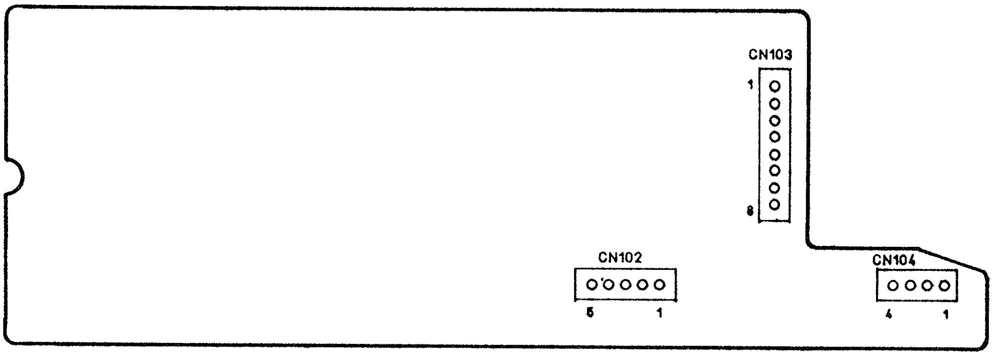
8
5
IC809
1
4
D804

AF-49 BOARD (COMPONENT SIDE)



RV601
AUDIO OUTPUT LEVEL L
RV602
AUDIO OUTPUT LEVEL R

PS-188 BOARD (CONDUCTOR SIDE)



CN103
1
8
CN102
5
1
CN104
4
1

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